

MISSOURI'S

*Blueprint*

A PARTNERSHIP  
TOWARD  
ZERO  
DEATHS

1,257

1,096

992

960

878

821

786

826

757

766

870

0

2016-2020





# Missouri's *Blueprint* ~

## A Partnership Toward Zero Deaths

*Dear Champions for Highway Safety:*

*Missouri's **Blueprint – A Partnership Toward Zero Deaths** marks the fourth edition of our state's strategic highway safety plans. The first three plans, **Missouri's Blueprint for Safer Roadways**, **Missouri's Blueprint to Arrive Alive** and **Missouri's Blueprint to Save More Lives** have helped reshape traffic safety in Missouri. They have been instrumental in saving lives and reducing serious injuries. This updated Blueprint is an ongoing strategic plan for all traffic safety advocates to use in their respective communities. This tool will assist in planning and continuing efforts in reducing the number of people killed and injured as the result of motor vehicle crashes on Missouri roadways.*

*This Blueprint revision is the result of hundreds of hours of work by dedicated volunteers that said yes when they were asked to serve on the Blueprint re-write committee. This group of diversified highway safety professionals representing the four E's of safety – (engineering, enforcement, education and emergency response) worked tirelessly to make sure problems were properly identified and appropriate strategies were incorporated. This group of 30 men and women never lost sight of the importance this document means to more than six million Missouri residents and countless numbers of non-resident motorists that use our roadways daily. In addition to the re-write committee more than 1,000 individuals had the opportunity to review and comment on this plan. This Blueprint is truly a collaborative effort that has been designed by highway safety champions who deeply care about the safety of the individuals that travel our roadways.*

*The work required to reduce deaths and serious injuries on our roadways is not an easy job. Missouri has seen a 31 percent reduction in fatalities since 2005 when 1,257 people lost their lives due to traffic crashes. Beginning in 2011, these fatality reductions began to plateau. In 2015, Missouri as well as the rest of the nation experienced an increase in fatalities. This means we must refocus and work harder to reverse any upward trend resulting in lives lost.*

***Missouri's Blueprint - A Partnership Toward Zero Deaths** will be the state's strategic plan during the next four years to save lives and reduce serious injuries. We owe it to all who use our roadways to make sure Moms, Dads, children, friends, co-workers and loved ones **ARRIVE ALIVE**.*

*Executive Committee*

*Missouri Coalition for Roadway Safety*



# HIGHWAY SAFETY... A VIEW FROM THE ROAD

Traffic crashes are violent events that can have lifelong implications. Crashes not only impact the lives of the individuals that were directly involved in the crash but also law enforcement officers, first responders, medical professionals, friends and family members.

Many individuals never view traveling or using our roadways the same after they have been involved directly or indirectly in a traffic crash. Their perspectives change when these unplanned events occur. On the following pages are seven personal stories that describe how traffic crashes have changed their lives and views.

***Missouri's Blueprint – A Partnership Toward Zero Deaths*** is dedicated to eliminating fatalities and serious injuries occurring on our roadways.

Moving toward zero deaths - providing more tomorrows for EVERYONE!





## THE FATHER



**THE NUMBERS:  
NATIONALLY, THE RISK OF  
BEING INVOLVED IN A  
CRITICAL CRASH IS  
23 TIMES  
GREATER IF THE DRIVER  
TEXTS WHILE  
DRIVING**

**"I had the family and the relationships...everything that one could have. I would've said, 'It could not happen to this family.' But it did."** - Marty Siddall

Everyday between 3:30 and 4 in the afternoon, Marty Siddall would call his 17-year old daughter, Paige, to see how her day went, what her plans were for the evening and so on. On Nov. 1, 2006, while on a golfing trip in Florida, he did the usual check-in, around 4:45 his time, 3:45 hers, and got her voice mail.

One time zone away, Paige, who was driving to work, got distracted, lost control of her car, struck a mailbox, overcorrected and rebounded into the path of an oncoming car. In a matter of seconds, Paige lost her life.

**"Looking at the phone records, there is no doubt in my mind that the crash happened at the time I was trying to call Paige."**

Marty and his daughter had a wonderful relationship. She was smart and kind, loved volunteering and helping others. Marty jokingly describes her as his "little hippie" and doesn't ever remember her using the word hate. A good student, Paige was set to go to the University of Missouri's Journalism School with dreams of some day studying in New York.

With one distraction, one glance away from the road, all those dreams were GONE.

## THE DOCTOR

**"All these injuries have a face, they are not just a news story, they have families."** - Dr. Jeffrey Coughenour

As trauma surgeon and medical director of the Trauma Center at the University of Missouri, Dr. Jeffrey Coughenour, has seen first-hand the result of traffic crashes, from mild concussions to serious brain injuries, where people never wake up again. He has seen every bone broken, a lot of internal injuries and unfortunately, death.

"You like to think a lot of the car crashes are just fender-benders, something you see in a little fleeting story at the beginning of the news, but reality is that a lot of these crashes will result in permanent disability if not death."

**"With crashes, there is likely some preventable factor. They are not just wild happenings. It can be maddening when you know there's something that could have been done differently."**

"There are still nights when I go home and hug my kids, not because I miss them, but because I just talked about someone their age who was fatally injured."



**THE NUMBERS:  
THERE WERE 2,349 FATALITIES  
ON MISSOURI ROADWAYS BETWEEN 2012-2014**

## THE PASSENGER



**"It's your life, you need to handle it with care."**



**"July 4th, 2015 - Looking back on this day has always been the hardest for me because it was my last day as a 'normal' person." - Skyler Gray**

Twenty year old, Skyler Gray, was just enjoying the Fourth of July holiday out in the country with her friends: tailgating, laughing, watching fireworks and drinking beer for most of the night. It was on the way home when the truck she was riding in with her boyfriend, Aaron, and friend, Hunter, missed the first turn and ran off the road and rolled.

Skyler always wore her safety belt and she would tell her friends to do the same. But that one night, after all the fun, excitement and drinking, she didn't...None of them did.

She and Hunter were ejected. Aaron was lucky, while he was thrown around the cab, he wasn't ejected. She had a broken neck, collar bone and an injured spinal cord. After she was life-flighted to a hospital, she spent the next two weeks in ICU and observation room before being moved to a rehabilitation center. She spent her 21st birthday in the hospital.

She would have to learn how to move her body again. Daily things we take for granted are a chore: writing, dressing, lifting things, even walking. She still has a catheter and cannot feel pain or temperature from her shoulders down. But she says the worst part is seeing how all of this has affected her family and friends.

**"They had to do a lot to take care of me. It was messing with their jobs, lives, and most of all with their emotions...you have no idea how your actions and the decisions you make can affect the people that you love."**

**"I was a good kid, with good grades and had just graduated from college. I just made a mistake one night and got in a vehicle where we had all been drinking and I didn't wear my safety belt - that decision changed my life FOREVER."**

### THE NUMBERS:

**BETWEEN 2012-2014**

**82%**

**OF PICKUP TRUCK DRIVERS AND PASSENGERS KILLED IN MISSOURI WERE UNRESTRAINED**

## THE SURVIVOR

**"There was so much broken glass everywhere. The car was completely totaled. My safety belt definitely saved my life." - Xavior Jordan**

Twenty-two year old Xavior Jordan loves to play the saxophone. Late one night, after playing a gig in Columbia, he was driving home. He was almost to Jefferson City when he lost control of his car. It crashed into the guard rail on the side of the highway.

His car was totaled and he was shaken up, but he walked away with just a minor cut on his head. The thing that saved him that night? He was wearing his safety belt.

**"I feel that people need to know how important it is to wear their safety belt. I wouldn't be here today if I wasn't wearing my safety belt."**



**THE NUMBERS:**  
**SAFETY RESTRAINTS CAN REDUCE THE RISK OF FATAL INJURIES BY 45 PERCENT**  
**(FOR FRONT SEAT PASSENGER VEHICLE OCCUPANTS)**



## THE OFFICER

Sergeant Scott White knows the importance of talking about and promoting responsible driving habits. While he has been with the Missouri State Highway Patrol for many years, there is one experience that stands out for him:

He stopped a new driver, a teenage boy, and his mom one afternoon. The driver had rolled through a stop sign and when White approached the car, he also noticed the driver wasn't wearing his safety belt. He ended up just giving him a warning for the traffic violation but a ticket for the safety belt.

"I had talked with him and his mom for a good while and I know we had a couple of laughs, it was a very light-hearted stop and then they went on their way."

Ten days later, that young driver was driving by himself and was killed in a car crash. He wasn't wearing his safety belt. White would later learn the boy probably would have lived had he been wearing his safety belt.

**"I think back to that day I stopped him and I think his mom and I wish we could have that day back. If any of us had known what would happen just a few short days later, we would have had a much more serious discussion about safety belts and how they can save your life."** - Sergeant Scott White



### THE NUMBERS:

**BETWEEN 2012-2014**

**66%**

**OF VEHICLE DRIVERS AND PASSENGERS KILLED ON MISSOURI ROADWAYS WERE UNRESTRAINED**



## THE FIRST RESPONDER

**"People should take responsibility for the way they drive. Driving is a full-time job...You need to be 100% committed to it. It wouldn't be acceptable for your pilot to be texting while they are flying or your surgeon to be texting while he was operating. With that being said, why do so many think it's acceptable to text while driving?"** - Battalion Chief John Metz

Battalion Chief John Metz has been in the emergency services profession for about 30 years and has seen it all. As a paramedic and now a firefighter, he has witnessed the effects a

crash has not only on the driver and/or passengers, but also with his own team.

"Unfortunately, we see very horrific things and that's very hard to deal with. When we are on-scene, we deal with them professionally. But after the call, when we get back to the fire station, that can start to take a toll on us when we actually think about what we participated in."

"Probably the worst part in dealing with these crashes is that they are preventable, they don't have to happen."

### THE NUMBERS:

**94 PERCENT**

**OF ALL TRAFFIC CRASHES ARE THE RESULT OF HUMAN ERROR**

# THE SOBER DRIVER



**“If I could say something to Kevin (the man who crashed into me), it would just be, ‘Why?’. Why did you choose to drink and drive? In those 2.5 seconds, you changed a 21-year old’s life forever. Your children no longer have a father because of your actions. So I would just ask, ‘Why’.”**

*- Leslie Sutton.*

On March 28, 2009, Leslie Sutton, was driving home from her cousin’s wedding with her boyfriend and his little girl. She was the designated driver and only drank soda the entire night. It was late and snowing, the last snow storm of the year, so she was extra cautious and driving slowly, focusing on the road.



A drunk driver hit her head-on traveling 79 miles per hour in a 55 mile per hour zone. When the ambulance and firefighters arrived on the scene, they could tell that Leslie had broken both of her arms and her left leg. They thought they were going to have to amputate her right leg. They knew her hip was broken and thought her spine was broken as well.

*“It took 49 minutes to get me out of the car and, in that time, I lost five pints of blood.”*



They would later learn that every bone in her body was bruised, fractured or broken. She would require 15 surgeries in the years to follow, with still more to come. Seven years after the crash, she has metal in all four of her limbs and walks with a severe limp. Pieces of glass still come out of her face. She was just 21 years old when this happened and her whole world was turned upside down.

*“I had to relearn how to do everything. Everything I taught my daughter to do for the first time, my Mom had to teach me to do again. Just simple things like brushing my teeth, getting dressed... just using my arms and legs. I had to relearn how to walk.”*

**“I don’t want people to feel sorry for me. I want you to learn from what happened to me. It takes two seconds to call a taxi and it takes two seconds to either change your life or someone else’s - SO WHICH TWO SECONDS DO YOU CHOOSE?”**

## THE NUMBERS:

**BETWEEN 2012 - 2014**

**652 PEOPLE WERE KILLED AND 2,353 SERIOUSLY INJURED  
IN SUBSTANCE-IMPAIRED DRIVER CRASHES**



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18



36



64



74



90

102







# THE ROAD WE'VE TRAVELED

Missouri's Blueprint is part of a national initiative that began in 2005 when Congress passed legislation requiring all states to develop a strategic highway safety plan. These plans were designed to prevent the devastating human and economic consequences caused by traffic crashes. Missouri has historically followed guidance provided the American Association of State Highway and Transportation Officials (AASHTO) by focusing on identified emphasis and focus areas where progress can be made in reducing transportation related fatalities and serious injuries. These beginning years led to the creation of the Missouri Coalition for Roadway Safety (MCRS), a coming together of safety advocates including law enforcement agencies, health care providers, courts, local, state and federal government agencies, advocacy groups, planning organizations, concerned citizens and other safety partners. Missouri's plans have been guided by the following fundamental principles in the development and implementation phases of our Blueprint:

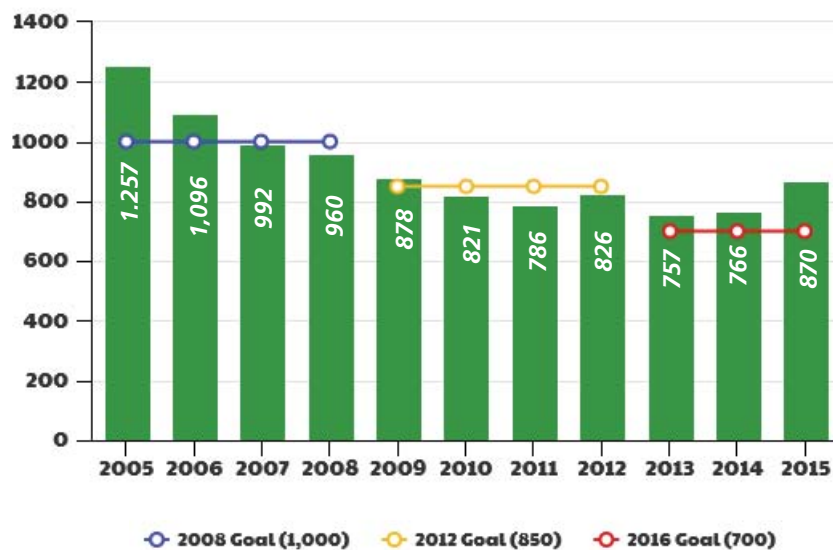
- Focus on the number and rate of fatalities and serious injuries
- Focus on the number of non-motorized fatalities and serious injuries
- Implementation based on crash and other safety data analysis to identify safety issues on all public roads
- Utilize a multi-disciplinary approach by focusing on engineering, education, enforcement and emergency medical services
- Use evidence-based strategies
- Ensure implementation of countermeasures at both state and local levels
- Monitor and evaluate progress
- Support system-wide safety enhancements

The MCRS has been instrumental in helping reduce the number of fatalities and serious injuries by ensuring a strong collaborative and comprehensive approach when implementing Missouri's Blueprint.

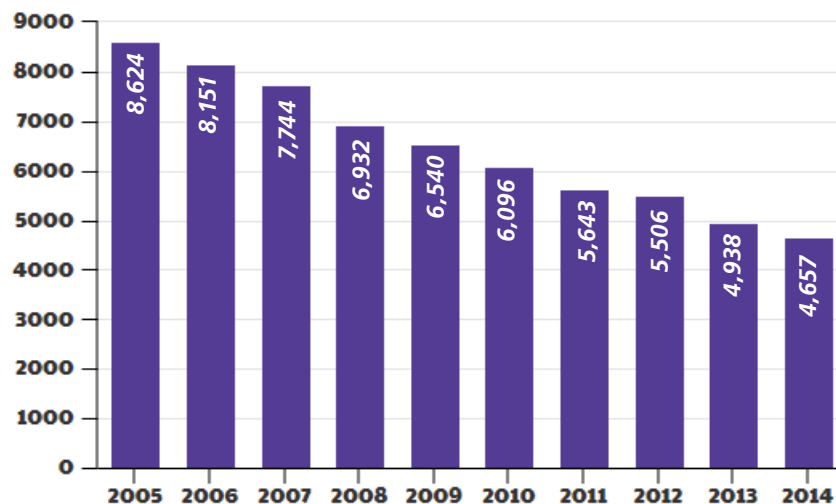
# OUR RESULTS

Between 2005 and 2014 Missouri's annual traffic fatalities decreased from 1,257 to 766; however, there has been an increase to 870 in 2015. In the same time period (2005-2014), serious injuries fell from 8,624 to 4,657. Missouri experienced six consecutive years of fatality reductions and nine consecutive years of reductions in serious injuries. The following charts show the fatality and serious injury numbers and rates since 2005.

## 2005-2015 MISSOURI TRAFFIC CRASH FATALITIES

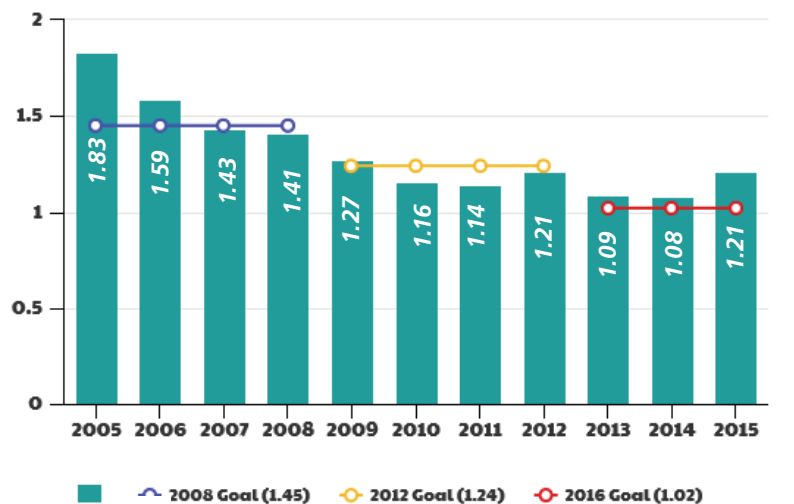


## 2005-2014 MISSOURI TRAFFIC CRASH SERIOUS INJURIES

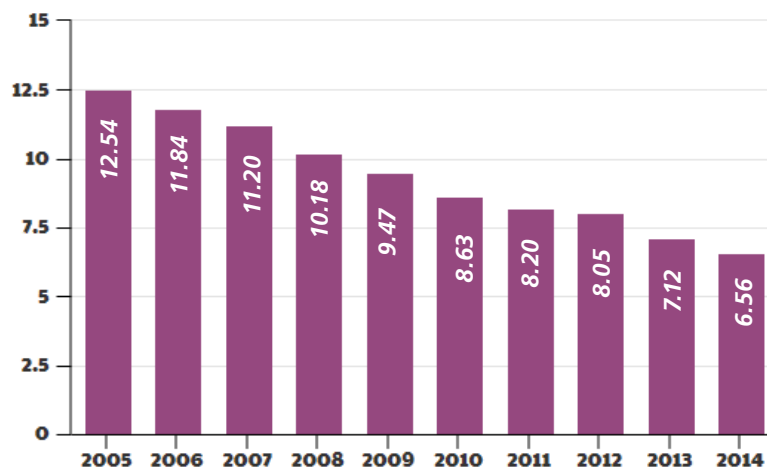




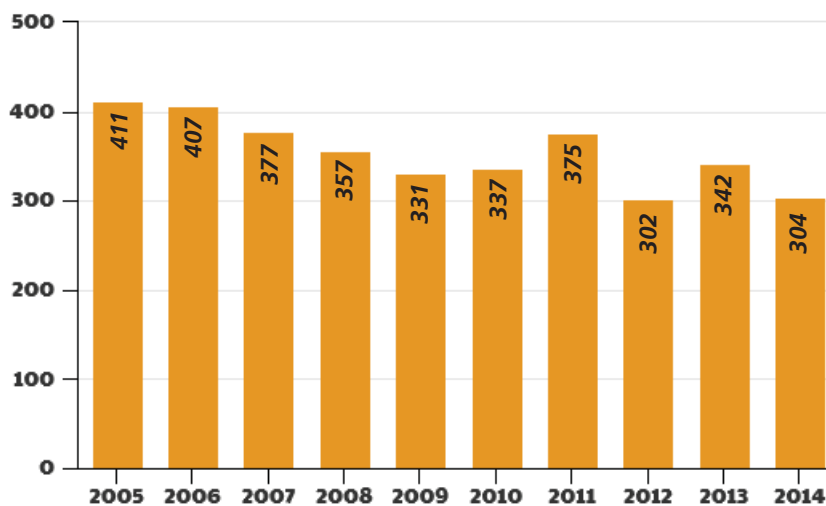
## 2005-2015 MISSOURI TRAFFIC CRASH FATALITY RATE



## 2005-2014 MISSOURI TRAFFIC CRASH SERIOUS INJURY RATE



## 2005-2014 MISSOURI TRAFFIC CRASH NON-MOTORIZED (BICYCLE/PEDESTRIAN) FATALITIES & SERIOUS INJURIES





## FATALITY REDUCTION SINCE 2005 FOR MOST FREQUENT CRASH AREAS

<i>Fatalities Involving</i>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10-year total	% Fatality Reduction 2005 vs 2014
<b>Aggressive Drivers</b>	706	593	547	551	503	457	441	434	428	401	5,061	43%
<b>Unrestrained Occupants</b>	622	576	478	489	425	392	380	396	334	327	4,419	47%
<b>Run-off-Road Crashes</b>	594	494	447	460	398	395	398	401	365	352	4,304	41%
<b>Horizontal Curves</b>	427	375	350	332	293	262	270	279	263	256	3,107	40%
<b>Substance-Impaired Drivers</b>	269	267	243	274	265	229	223	231	223	198	2,422	26%
<b>Young Drivers - Age 15-20</b>	267	253	183	195	156	119	151	135	120	114	1,693	57%
<b>*Distracted/Inattentive Drivers</b>	277	237	227	209	156	183	164	85	74	61	1,673	78%
<b>Intersection Crashes</b>	178	206	179	175	159	174	121	135	100	111	1,538	38%

## SERIOUS INJURY REDUCTION SINCE 2005 FOR MOST FREQUENT CRASH AREAS

<i>Serious Injuries Involving</i>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10-year total	% Fatality Reduction 2005 vs 2014
<b>Aggressive Drivers</b>	3,951	3,778	3,679	3,321	3,063	2,909	2,558	2,485	2,264	2,153	30,161	46%
<b>Run-off-Road Crashes</b>	3,557	3,349	3,338	2,967	2,692	2,543	2,312	2,281	1,982	1,936	26,957	46%
<b>Intersection Crashes</b>	2,608	2,467	2,299	2,073	2,083	1,890	1,504	1,339	1,283	1,179	18,725	55%
<b>Horizontal Curves</b>	2,465	2,282	2,199	1,889	1,783	1,636	1,521	1,484	1,245	1,264	17,768	49%
<b>Unrestrained Occupants</b>	2,535	2,401	2,117	1,932	1,703	1,598	1,452	1,449	1,240	1,175	17,602	54%
<b>Young Drivers - Age 15-20</b>	2,474	2,278	1,981	1,802	1,646	1,444	1,252	1,261	1,050	932	16,120	62%
<b>*Distracted/Inattentive Drivers</b>	2,183	2,066	2,042	1,629	1,606	1,454	1,347	825	722	711	14,585	67%
<b>Substance-Impaired Drivers</b>	1,373	1,332	1,282	1,171	1,108	934	901	884	744	725	10,454	47%

\*In 2012, Missouri adopted a new crash report which doesn't allow for comparison to previous reports associated with distracted driving.



# THE ROAD AHEAD

**Missouri's Blueprint - A Partnership Toward Zero Deaths** will serve as the strategic plan for all agencies and organizations working to improve roadway safety.

The Missouri Coalition for Roadway Safety will continue to lead the implementation efforts of this Blueprint. The coalition will need the help of existing safety advocates as well as enlisting new partners as we move forward with this endeavor.

Missouri established goals for the previous three Blueprints - 1,000 or fewer fatalities by 2008; 850 or fewer fatalities by 2012; and 700 or fewer fatalities by 2016. The first two Blueprint goals were achieved. The interim goal of 700 or fewer fatalities must be met in order to reach ZERO deaths. **Missouri's ultimate Blueprint goal is that NO lives are lost due to a traffic crash.**

Reducing the number and severity of traffic crashes is not an easy job. It takes a concerted effort from metropolitan planning organizations, regional planning commissions, community leaders, legislators, educators, law enforcement, emergency responders, engineers and citizens. EVERYONE must work together to ensure no more lives are lost because of something so preventable.

The heart and soul of the Blueprint implementation is the MCRS. The Coalition provides the focus, foundation and fundamental resources necessary to implement this new strategic highway safety plan. The MCRS is organized into three parts: executive committee, 11 state-level subcommittees and seven regional coalitions. The individuals who serve on these committees and coalitions help bring roadway safety issues to all corners of this great state. It takes a dedicated team of safety champions to help change the culture of highway safety.

Zero fatalities is our ultimate goal -  
how can we accept anything else...

ZERO

# MISSOURI COALITION FOR ROADWAY SAFETY



## REGIONAL COALITIONS



*This map depicts the seven Regional Coalitions. For more information about the Coalitions and their regional contacts, visit the [SAVEMOLIVES.com](http://SAVEMOLIVES.com) website*

- Northwest
- Northeast
- Kansas City
- Central
- St. Louis
- Southwest
- Southeast



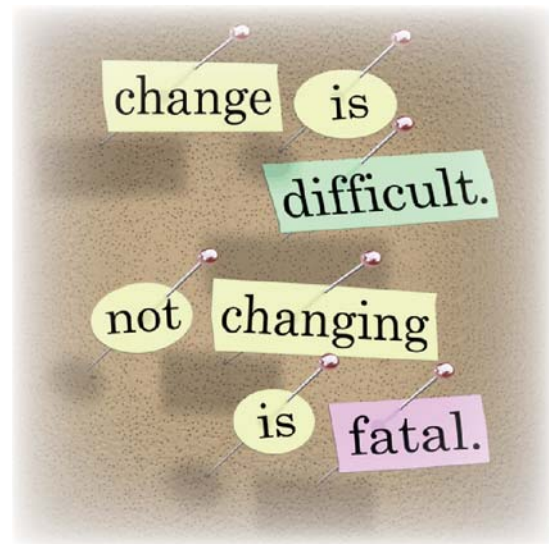
# CHANGING THE TRAFFIC SAFETY

## Culture

The National Highway Traffic Safety Administration indicates more than 94 percent of all traffic crashes are the result of human error. Operating a motor vehicle requires 100 percent of our attention. The motoring public must accept and take responsibilities for their actions and adopt the mindset that the best way to prevent a crash is to do everything possible to avoid the crash. This means obeying posted speed limits, avoiding all distractions, especially the use of the cell phone, and eliminating substance-impaired driving. Substance-impaired driving is a conscious choice we can no longer accept. Teen drivers continue to be a high-risk population and are overrepresented in roadway crashes. Increasing safety belt usage among teens and educating parents on Missouri's Graduated Driver Licensing law are critical in changing this trend.

### **PARTNERSHIPS**

The multidisciplinary approach of Education, Engineering, Enforcement and Emergency Response is critical to the success of this Blueprint. These groups must work together cooperatively to minimize duplication of effort, and come together as one team to help fulfill the vision of a Partnership Toward Zero Deaths. Ultimate success of this Blueprint will be measured by reductions in the number and rate of fatalities and serious injuries.




**94 percent  
of all traffic  
crashes are the  
result of  
human error**

# THE FOCUSED FIVE

Historically, the Blueprint has identified a few strategies having the greatest potential to save lives and reduce serious injuries. These strategies were called the Essential Eight in 2004, Targeted Ten in 2008 the, Necessary Nine in 2012 and now the Focused Five. Aggressive implementation of the Focused Five represents the greatest opportunity to save lives.

CHANGE THE TRAFFIC SAFETY CULTURE



Increase safety belt/safety restraint use - Everyone, Every Trip, Every Time, Day and Night


Educate roadway users on their roles and responsibilities

Expand outreach efforts to new traffic safety partners

Educate on the dangers of aggressive, distracted and substance-impaired driving

Create safe and efficient clearance of roadway impacts

## HIGHWAY SAFETY LEGISLATION




Pass a primary safety belt law

Pass a cell phone ban law for all drivers

Maintain and enhance existing traffic safety laws

Increase transportation funding

## INCREASE ENFORCEMENT EFFORTS




Focus on high-crash corridors and work zones

Expand efforts to stop aggressive driving

Increase sobriety checkpoints/saturation patrols

Expand multi-jurisdictional task forces

## IMPLEMENT ENGINEERING SOLUTIONS




Install shoulders with rumble stripes

Improve curve safety

Increase use of innovative intersection designs

Enhance roadway visibility

## ENHANCE PEDESTRIAN SAFETY



Install/improve signage, pavement markings and signals

Educate pedestrians on safe habits (pedestrian to roadway interactions, distractions and substance impairment)

# SIX EMPHASIS AREAS

This Blueprint is comprised of six emphasis areas and 27 focus areas. Strategies have been identified that provide the opportunity to reduce fatalities and serious injuries resulting from roadway crashes.

## EMPHASIS & FOCUS AREAS INCLUDE:

### 1. SERIOUS CRASH TYPES

#### Lane Departure

- Run-Off-Road - Not in a Curve

- Run-Off-Road - In a Curve

- Collision with Trees and/or Utility Poles

- Head-On

#### Intersections

- Non-Signalized

- Signalized

### 2. HIGH-RISK DRIVING & UNRESTRAINED OCCUPANTS

- Aggressive Driving

- Unrestrained Drivers and Occupants

- Substance-Impaired Driving

- Unlicensed/Improperly Licensed Driving

- Young Driver (15 - 20 years of age)

- Distracted/Inattentive Driving

- Drowsy Driving

### 3. SPECIAL VEHICLES

- Commercial Motor Vehicles (CMV's)

- All-Terrain Vehicles (ATV's)/Utility Vehicles (UTV's)

- School Buses

### 4. VULNERABLE ROADWAY USERS

- Older Driver (Age 65 or Older)

- Motorcyclists

- Pedestrians

- Bicyclists

### 5. SPECIAL ROADWAY ENVIRONMENTS

- Nighttime Driving

- Work Zone

- Highway / Rail Crossing

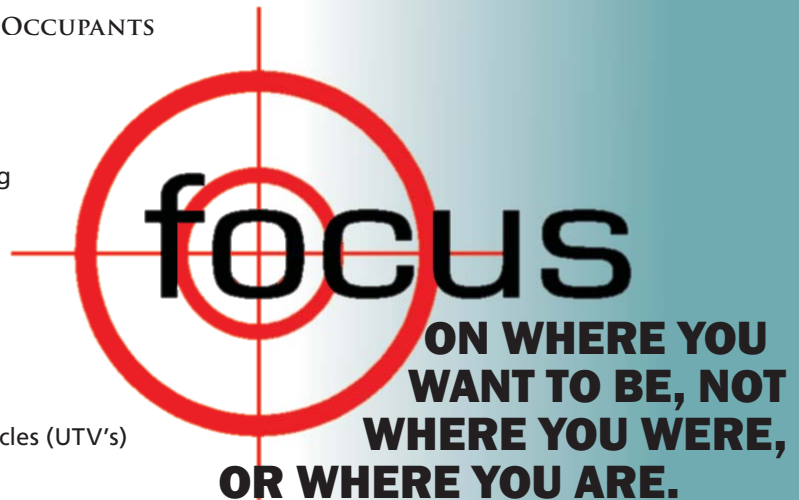
- Traffic Incident Management Area

### 6. DATA & DATA SYSTEM IMPROVEMENTS

- Data Collection

- Data Accessibility

- System Linkage





# EMPHASIS AREAS

This section of the Blueprint details the emphasis areas their corresponding focus areas and key strategies. Fatal and serious injury crash data (2012 through 2014) are provided for each emphasis and focus area. Each focus area begins with a description of “The Challenge” followed by a list of key strategies in education, emergency response, enforcement, engineering, technology and public policy/other categories. Performance measures designed to monitor the progress of the Blueprint are identified for each focus area.

Each emphasis area has a chart identifying the number of fatalities and serious injuries. Each focus area addresses “The Challenge” describing the problem associated with that particular focus area. This is followed by two charts: one showing in descending order the roadways where the fatalities occurred; and the second chart showing in descending order the contributing circumstance or behavior identified as the contributing circumstance of the fatality. Each focus area then has key strategies identified to assist in countermeasure development.

When using this document it is important to remember the Blueprint serves as a state-wide strategic plan. Individual cities, counties, Metropolitan Planning Organizations and Regional Planning Commissions should review local data to determine their specific roadways and behaviors that contribute to fatalities and serious injuries in their particular jurisdictions. This Blueprint contains additional crash data for MoDOT districts, Missouri State Highway Patrol Troops and Metropolitan Planning Organizations.

The entire document focuses on ways to bring about CHANGE within our culture and communities so everyone, everyday goes home safe!

**EMPHASIS AREA I**  
**SERIOUS CRASH TYPES**

**EMPHASIS AREA II**  
**HIGH-RISK DRIVING &  
UNRESTRAINED OCCUPANTS**

**EMPHASIS AREA III**  
**SPECIAL VEHICLES**

**EMPHASIS AREA IV**  
**VULNERABLE ROADWAY  
USERS**

**EMPHASIS AREA V**  
**SPECIAL ROADWAY  
ENVIRONMENTS**

**EMPHASIS AREA VI**  
**DATA & DATA SYSTEM  
IMPROVEMENTS**

# EMPHASIS AREA I

## SERIOUS CRASH TYPES



Missouri crash data from 2012-2014 was analyzed to determine the crash types most often resulting in fatalities and serious injuries. Two primary crash types with six focus areas were determined:

### LANE DEPARTURE

- *Run-Off-Road - Not in a Curve*
- *Run-Off-Road - In a Curve*
- *Collision with Tree and/or Utility Pole*
- *Head-on*

### INTERSECTIONS

- *Non-signalized*
- *Signalized*





The table below depicts fatalities and serious injuries by crash type.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Lane Departure								
Run-Off-Road - Not in a Curve	216	190	183	589	1,302	1,194	1,110	3,606
Run-Off-Road - In a Curve	185	175	169	529	979	788	826	2,593
Collision with Trees and/or Utility Poles	153	171	163	487	793	697	680	2,170
Head-On	96	106	119	321	506	443	467	1,416
Intersections								
Non-Signalized	104	75	81	260	917	816	793	2,526
Signalized	31	25	30	86	423	465	386	1,274

Crash data from 2012-2014 was analyzed to determine the crash types most often resulting in fatalities and serious injuries. In Missouri, 81 percent of the fatalities and 66 percent of the serious injuries were attributed to lane departure crashes. When vehicles leave their lane, they often strike another vehicle, a roadside object, (e.g. trees, utility poles, etc.) and/or overturn. Fifteen percent of fatalities

and 25 percent of serious injuries were attributed to crashes at intersections. These crashes often include non-compliance with traffic laws, an obstructed view, and/or poor judgment (e.g., aggressive driving, distracted/inattentive driving, etc.). Fatalities and serious injuries at intersections are most often the result of right angle (T-bone) collisions.

## RUN-OFF-ROAD - NOT IN A CURVE

### THE CHALLENGE

During the last three years in Missouri, 53 percent of run-off-road fatalities and 58 percent of serious injuries occurred in locations that did not include a curve.

Often, these vehicles leave the roadway, overturn and/or strike an object, such as a tree. Seventy-five percent of vehicle occupant fatalities involved in these crashes were unrestrained.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Run-Off-Road - Not in a Curve	216	190	183	589	1,302	1,194	1,110	3,606

The table below depicts run-off-road (not in a curve) fatalities by roadway designation. Between 2012 and 2014, 19 percent of these fatalities occurred on Missouri city streets.

Designation	Fatalities			
	2012	2013	2014	Total
City Street	38	40	34	112
Missouri Lettered	32	38	39	109
County Road	45	31	32	108
Missouri Numbered	33	35	31	99
Interstate	32	23	27	82
U.S. Route	30	17	17	64
*Other	6	6	3	15
Total	216	190	183	589

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts fatalities involving a driver who ran-off-road (not in a curve) in addition to meeting one or more of the below conditions. In Missouri, aggressive drivers who ran-off-road were involved in 64 percent of the fatalities.

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	131	121	124
Unrestrained Drivers & Occupants	134	110	105
Substance-Impaired Driver Involved	60	71	68
Unlicensed/Improperly Licensed Driver Involved	44	41	41
Young Driver (Age 15-20) Involved	31	37	25
Older Driver (Age 65 & Over) Involved	24	20	30
Distracted/Inattentive Driver Involved	21	22	12
Commercial Motor Vehicle Driver Involved	18	15	14
Motorcycle Driver Involved	13	4	13
Pedestrians	11	5	3

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



of run-off-road fatalities  
(not in a curve) took  
place at  
**NIGHT**



## KEY STRATEGIES

### EDUCATION

- Educate roadway users:
  - about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERY TIME
  - on dangers of using cruise control during rainy and adverse weather conditions or curvy roadways
  - on following traffic laws, rules of the road/ courteous driving
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME, day and night
- Train and educate drivers how to safely recover after leaving the roadway (e.g., educational videos, literature, driver's education manual, hands-on training courses, etc.)
- Use media to educate drivers on the potential causes and outcomes of run-off-road crashes

### EMERGENCY RESPONSE

- Continue to improve emergency response time through multidisciplinary training, better planning, new technologies and enhanced communication
- Educate trauma centers and EMS personnel on emerging technologies being incorporated in vehicles
- Encourage emergency response participation in road safety assessments

### ENFORCEMENT

- Use enforcement to reduce high-risk driving behaviors (e.g., aggressive, substance-impaired, distracted driving, drowsy driving, etc.)
- Increase targeted high-visibility enforcement on high-crash roadways/corridors
- Include law enforcement participation in road safety assessments
- Expand enforcement activities during nighttime conditions
- Encourage use of coordinated multijurisdictional enforcement activities addressing high-risk driving behaviors (e.g., use of safety belts and child safety seats, aggressive driving, speeding, substance-impaired, etc.)

### ENGINEERING

- Install center and edgeline rumble strips/stripes
- Install Safety Edge <sup>TM</sup> (creating a 30 degree wedge at the edge of pavement)
- Expand, improve and maintain roadway visibility features (e.g., brighter stripes, delineation, etc.)
- Expand and improve shoulder treatments (e.g., pave shoulders, eliminate edge drop-offs, etc.)
- Remove, shield, and /or delineate roadside obstacles when possible
- Improve road surface friction and drainage
- Utilize safety data analysis tools when designing roadways (e.g., Highway Safety Manual)

### TECHNOLOGY

- Support:
  - in-vehicle edgeline and lane proximity warning devices
  - emerging technologies to reduce distracted driving (e.g., in vehicle, mobile app restrictions, etc.)
  - vehicle-to-vehicle and vehicle-to-infrastructure communication to warn drivers of imminent safety concerns (e.g., blind spot monitoring, upcoming curve, adverse pavement conditions, etc.)

### PUBLIC POLICY / OTHER

- Expand current legislation to restrict texting for all drivers
- Encourage and support legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

### PERFORMANCE MEASURES

- Number of fatalities and serious injuries resulting from run-off-road crashes not in a curve





## RUN-OFF-ROAD - IN A CURVE

### THE CHALLENGE

During the past three years in Missouri, 47 percent of run-off-road fatalities and 42 percent of serious injuries occurred in curves. Often, these vehicles leave

the roadway, overturn and/or strike an object, such as a tree. Seventy-seven percent of vehicle occupant fatalities involved in these crashes were unrestrained.

	Fatalities					Serious Injuries			
	2012	2013	2014	Total		2012	2013	2014	Total
Run-Off-Road - In a Curve	185	175	169	529		979	788	826	2,593

The table below depicts run-off-road (in a curve) fatalities by roadway designation. Between 2012-2014, 54 percent of these fatalities occurred on Missouri numbered and lettered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Lettered	58	45	49	152
Missouri Numbered	47	43	46	136
County Road	25	37	31	93
City Street	20	21	9	50
U.S. Route	12	19	13	44
Interstate	14	8	9	31
*Other	9	2	12	23
Total	185	175	169	529

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts fatalities involving a driver who ran-off-road (in a curve) in addition to meeting one or more of the below conditions. In Missouri, aggressive drivers who ran-off-road were involved in 79 percent of the fatalities.

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	146	151	123
Unrestrained Drivers & Occupants	121	101	100
Substance-Impaired Driver Involved	90	88	65
Unlicensed/Improperly Licensed Driver Involved	37	40	41
Young Driver (Age 15-20) Involved	24	27	24
Motorcycle Driver Involved	29	23	13
Older Driver (Age 65 & Over) Involved	19	12	23
Distracted/Inattentive Driver Involved	14	10	15
Commercial Motor Vehicle Driver Involved	7	7	9
Pedestrians	0	2	3

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



**76% of run-off- road  
(in a curve)  
fatalities occurred in  
RURAL areas**

# KEY STRATEGIES

## EDUCATION

- Educate roadway users:
  - about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERY TIME
  - on dangers of using cruise control during rainy and adverse weather conditions as well as on curvy roadways
  - on following traffic laws, rules of the road and courteous driving
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME, day and night
- Train and educate drivers how to safely recover after leaving the roadway (e.g., educational videos, literature, driver's education manual, hands-on training courses, etc.)
- Use media to educate drivers on the potential causes and outcomes of crashes

## EMERGENCY RESPONSE

- Continue to improve emergency response time through multidisciplinary training, better planning, new technologies and enhanced communication
- Educate trauma centers and EMS personnel on emerging technologies being incorporated in vehicles

## ENFORCEMENT

- Use enforcement to reduce high-risk driving behaviors (e.g., aggressive, substance-impaired, distracted driving, drowsy driving, etc.)
- Increase targeted high-visibility enforcement on high-crash roadways/corridors
- Include law enforcement participation in road safety assessments
- Expand enforcement activities during nighttime conditions
- Encourage use of coordinated multijurisdictional enforcement activities addressing high-risk driving behavior (e.g., use of safety belts and child safety seats, aggressive driving, speeding, substance-impaired, etc.)

## ENGINEERING

- Install:
  - center and edgeline rumble strips/strips
  - transverse rumble strips

- Expand, improve and maintain:
  - shoulder treatments (e.g., pave shoulders, eliminate edge drop-offs, etc.)
  - roadway visibility features (e.g., chevron/curve warning signs, speed advisory plaques, pavement markings, lighting, etc.)
- Increase pavement friction and/or consider the application of High Friction Surface Treatment (HFST)
- Remove, shield, and /or delineate roadside obstacles when possible
- Modify roadway geometry by improving superelevation and widening lanes in curves
- Use traffic calming practices to reduce speeds in advance of curves
- Utilize safety data analysis tools when designing roadways (e.g., Highway Safety Manual, etc.)

## TECHNOLOGY

- Install:
  - sequential flashing chevrons
  - in-pavement illumination
  - sensors to detect vehicle height and warn about the potential for overturning
- Support:
  - in-vehicle edgeline and lane proximity warning devices
  - emerging technologies that reduce distracted driving (e.g., in vehicle, mobile app restrictions, etc.)
  - vehicle-to-vehicle and vehicle-to-infrastructure communication to warn drivers of imminent safety concerns (e.g., blind spot monitoring, upcoming curve, adverse pavement conditions, etc.)
- Add interactive advance speed warning signs

## PUBLIC POLICY / OTHER

- Expand current legislation to restrict texting for all drivers
- Encourage and support legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

## PERFORMANCE MEASURES

- Number of fatalities and serious injuries resulting from run-off-road crashes in a curve

## COLLISION WITH TREE AND/OR UTILITY POLE

### THE CHALLENGE

When vehicles leave the roadway, they often strike an object. Two of the objects struck most frequently are trees and utility poles, which are unforgiving in

a collision. During the last three years, crashes involving a tree and/or utility pole accounted for 21 percent of fatalities and 14 percent of serious injuries.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Collision with Tree and/or Utility Pole	153	171	163	487	793	697	680	2,170

The table below depicts collision with tree and/or utility pole fatalities by roadway designation. Between 2012-2014, 47 percent of these fatalities occurred on Missouri lettered routes.

Designation	Fatalities			
	2012	2013	2014	TOTAL
Missouri Lettered	34	39	42	115
County Road	35	37	40	112
Missouri Numbered	35	35	37	107
City Street	30	39	25	94
U.S. Route	10	16	11	37
Interstate	7	3	6	16
*Other	2	2	2	6
Total	153	171	163	487

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts collision with tree and/or utility pole fatalities in addition to meeting one or more of the below conditions. In Missouri, 73 percent of collision with tree and/or utility pole fatalities involved an aggressive driver.

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	108	126	122
Unrestrained Drivers & Occupants	112	102	86
Substance-Impaired Driver Involved	60	74	75
Unlicensed/Improperly Licensed Driver Involved	36	34	36
Young Driver (Age 15-20) Involved	24	29	35
Older Driver (Age 65 & Over) Involved	19	17	17
Distracted/Inattentive Driver Involved	13	12	13
Motorcyclists	5	8	11
Commercial Motor Vehicle Driver Involved	3	8	3
Pedestrians	1	0	2

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



75% of vehicle occupant fatalities involved in collisions with trees and/or utility poles were **UNRESTRAINED**



of collision with tree and/or utility pole fatalities took place at **NIGHT**



## KEY STRATEGIES

### EDUCATION

- Educate roadway users:
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME, day and night
  - about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERY TIME
  - on dangers of using cruise control during rainy and adverse weather conditions or curvy roadways
  - on following traffic laws, rules of the road/ courteous driving
- Educate property owners and utility companies on how to create/maintain a safe roadside clear zone and its relevance to traffic safety
- Train and educate drivers how to safely recover after leaving the roadway (e.g., educational videos, literature, driver's education manual, hands-on training courses, etc.)
- Use media to educate drivers on the potential causes and outcomes of run-off-road crashes

### EMERGENCY RESPONSE

- Continue to improve emergency response time through multidisciplinary training, better planning, new technologies and enhanced communication



**"MALE drivers were involved in serious lane departure crashes nearly TWICE as often as female drivers"**

- Educate trauma centers and EMS personnel on emerging technologies being incorporated into vehicles

### ENFORCEMENT

- Increase targeted high-visibility enforcement on high-crash roadways/corridors
- Expand enforcement activities during nighttime conditions
- Include law enforcement participation in road safety assessments

### ENGINEERING

- Remove:
  - trees from the right-of-way that could be struck by an errant vehicle
  - shield, and /or delineate trees, utility poles or other fixed objects when practical or when warranted

**During  
2012-2014**

**86**

**fatalities  
involved  
collisions with**

**UTILITY  
POLES**



- Provide:
  - adequate clear zones (e.g., consider clearing or shielding fixed objects beyond clear zones)
  - utility pole delineation (e.g., reflectors) when relocation is not an option
- Relocate utility poles, provide underground utilities or install breakaway structures
- Expand, improve and maintain roadway visibility features (e.g., brighter stripes, delineation, pavement markings, lighting, etc.)
- Install, improve and maintain shoulders, (e.g., rumble strips/strips, etc.)

## TECHNOLOGY

- Support:
  - in-vehicle edgeline and lane proximity warning devices
  - emerging technologies that reduce distracted driving (e.g., in vehicle, mobile app restrictions, etc.)
  - vehicle-to-vehicle and vehicle-to-infrastructure communication to warn drivers of imminent safety concerns (e.g., blind spot monitoring, upcoming curve, adverse pavement conditions, etc.)

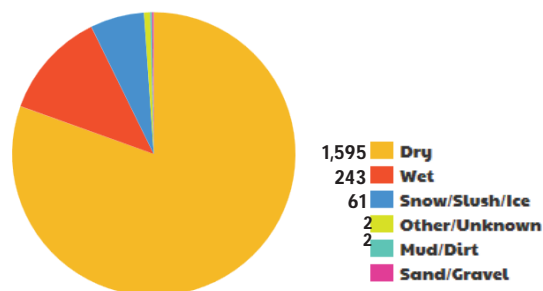
## PUBLIC POLICY/OTHER

- Improve policies on permitted work to ensure clear zones are maintained on right of ways
- Expand current legislation to restrict texting for all drivers
- Enact a primary safety belt law that includes all seating positions
- Encourage:
  - companies to bury utilities, where practical
  - property owners to remove trees near right-of-way
  - and support legislation to restrict all cell phone use while driving

## PERFORMANCE MEASURES

- Number of fatalities and serious injuries resulting from collision with a tree and/or utility pole

**LANE DEPARTURE FATALITIES BY ROAD CONDITION  
2012-2014**



Most lane departure crashes occur during ideal road conditions.

**During 2012-2014**

**415**

**fatalities involved  
collision with**

**TREES**

## HEAD-ON

### THE CHALLENGE

During the last three years, head-on crashes accounted for 14 percent of Missouri's fatalities and 9 percent of the serious injuries. These crashes occur when a vehicle leaves its driving lane and crosses over the centerline or median into oncoming traffic, or when a vehicle enters the roadway and travels in the wrong direction. Severe crashes in which a vehicle crosses over the centerline or median are most often the result of aggressive, substance-impaired and distracted/inattentive driving. Severe cross-centerline crashes occurred most often in rural areas.



Another type of head-on crash is a driver traveling the wrong direction on a divided roadway. Over the past three years, this type of crash has resulted in 37 fatalities. Severe wrong-way crashes are most often the result of aggressive and substance-impaired driving. These wrong-way crashes occurred most often in urban areas.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Head-On	96	106	119	321	506	443	467	1,416

The table below depicts head-on fatalities by roadway designation. Between 2012 and 2014, 41 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	TOTAL
Missouri Numbered	40	42	49	131
Missouri Lettered	12	24	26	62
U.S. Route	17	13	21	51
Interstate	10	9	10	29
City Street	10	10	8	28
County Road	5	6	2	13
*Other	2	2	3	7
Total	96	106	119	321

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts head-on fatalities in addition to meeting one or more of the below conditions. In Missouri, 46 percent of head-on fatalities involved an aggressive driver. Of the 283 vehicle occupants killed in head-on crashes, 52 percent were unrestrained.

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	42	45	62
Unrestrained Drivers & Occupants	43	47	44
Older Driver (Age 65 & Over) Involved	22	42	35
Substance-Impaired Driver Involved	24	22	29
Young Driver (Age 15-20) Involved	31	19	18
Unlicensed/Improperly Licensed Driver Involved	19	12	31
Commercial Motor Vehicle Driver Involved	17	18	23
Motorcycle Driver Involved	9	9	17
Distracted/Inattentive Driver Involved	6	13	6
Pedestrians	1	0	2

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



of head-on  
fatalities took  
place during the  
**DAY**



## KEY STRATEGIES

### EDUCATION

- Educate older drivers on safe driving practices and crash avoidance techniques
- Educate roadway users:
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME, day and night
  - on passing lanes, no-passing zone markings and the function of alternating passing lanes
  - on the importance of driving in the right-most lane to minimize risk of wrong-way or cross-median crash types
  - on dangers of using cruise control during rainy and adverse weather conditions as well as on curvy roadways
  - on basic signing/markings (e.g., passing zones and keep right of median)
  - about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERY TIME
  - on following traffic laws, rules of the road and courteous driving
- Train and educate drivers how to safely recover after leaving the roadway (e.g., educational videos, literature, driver's education manual, hands-on training courses)
- Use media to educate drivers on the potential causes and outcomes of crashes

### EMERGENCY RESPONSE

- Continue to improve emergency response time through multidisciplinary training, better planning, new technologies and enhanced communication
- Educate trauma centers and EMS personnel on emerging technologies being incorporated into vehicles

### ENFORCEMENT

- Strictly enforce vehicle passing laws
- Use enforcement to reduce high-risk driving behaviors (e.g., aggressive, substance-impaired, distracted driving, drowsy driving, etc.)
- Increase targeted high-visibility enforcement on high-crash roadways/corridors
- Include law enforcement participation in road safety assessments
- Expand enforcement activities during nighttime conditions

- Encourage use of coordinated multijurisdictional enforcement activities addressing high-risk driving behavior (e.g., use of safety belts and child safety seats, aggressive driving, speeding, substance-impaired, etc.)
- Promote the importance of citing and warning older drivers for driving violations

### ENGINEERING

- Install:
  - centerline rumble stripes and/or consider a painted buffer between opposing lanes of travel
  - median guard cable or equivalent barrier
  - lighting at ramp terminals
- Install/enhance signing and pavement marking at ramp terminals to properly indicate the direction of traffic
- Use pavement markings to establish appropriate no-passing zones
- Construct alternating passing lanes along high-priority rural two-lane roadways/corridors

### TECHNOLOGY

- Use:
  - flashing wrong-way signs and driver notification on dynamic message signs to warn of wrong-way drivers
  - wrong-way warning systems to notify law enforcement when wrong-way vehicles are detected
- Support:
  - in-vehicle edgeline and lane proximity warning devices
  - emerging technologies that reduce distracted driving (e.g., in vehicle, mobile app restrictions, etc.)
  - vehicle-to-vehicle and vehicle-to-infrastructure communication to warn drivers of imminent safety concerns (e.g., blind spot monitoring, head-on collision, adverse pavement conditions, etc.)

### PUBLIC POLICY/OTHER

- Make crossing a solid double yellow center stripe a traffic violation
- Expand current legislation to restrict texting for all drivers
- Encourage and support legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

## PERFORMANCE MEASURES

- Number of fatalities and serious injuries resulting from head-on crashes
- Number of fatalities and serious injuries resulting from wrong-way crashes
- Number of fatalities and serious injuries resulting from cross-centerline crashes



**Between 2012-2014, the two most common head-on fatalities involved:**

**WRONG WAY DRIVER - 37**

**CROSSED CENTERLINE - 247**

## NON-SIGNALIZED INTERSECTIONS

### THE CHALLENGE

Over the past three years, non-signalized intersection crashes accounted for 75 percent of fatalities and 66 percent of serious injuries. Severe crashes at non-signalized intersections are commonly the result of poor judgment when crossing or entering a roadway or other poor

driving behaviors (e.g., aggressive, substance-impaired, distracted/inattentive, etc.). These crashes occurred on multiple roadway types, but U.S. routes and Missouri numbered routes are overrepresented in the data.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Non-Signalized	104	75	81	260	917	816	793	2,526

The table below depicts non-signalized intersection fatalities by roadway designation. Between 2012 and 2014, 57 percent of these fatalities occurred on city streets and U.S. routes.

Designation	Fatalities			
	2012	2013	2014	TOTAL
City Street	30	20	25	75
U.S. Route	28	26	18	72
Missouri Numbered	21	20	20	61
Missouri Lettered	12	3	1	16
County Road	7	2	5	14
*Other	6	4	2	12
Interstate	0	0	0	0
Total	104	75	71	250

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

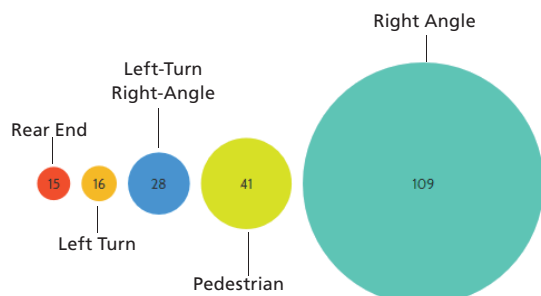
The table below depicts non-signalized intersection fatalities in addition to meeting one or more of the below conditions. In Missouri, 35 percent of non-signalized fatalities involved an older driver.

Crash Type	Fatalities		
	2012	2013	2014
Older Driver (Age 65 & Over) Involved	30	34	27
Unrestrained Drivers & Occupants	30	14	23
*Aggressive Driver Involved	23	14	18
Young Driver (Age 15-20) Involved	18	16	17
Commercial Motor Vehicle Driver Involved	22	11	17
Pedestrians	21	9	15
Motorcycle Driver Involved	20	13	12
Unlicensed/Improperly Licensed Driver Involved	18	9	8
Distracted/Inattentive Driver Involved	12	6	10
Substance-Impaired Driver Involved	16	4	6

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.

### FATALITIES AT NON-SIGNALIZED INTERSECTIONS By Crash Classification 2012-2014





## KEY STRATEGIES

### EDUCATION

- Educate older drivers:
  - on safe driving practices and crash avoidance techniques
  - on safe driving habits and practices, including how to select a car with advanced safety features
- Educate roadway users:
  - on intersection traffic controls (e.g., when to yield, right of way, vehicle positioning, etc.)
  - on innovative intersection designs (e.g., J-turns, roundabouts, etc.)
  - about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERY TIME
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME, day and night
  - on following traffic laws, rules of the road/ courteous driving
- Educate pedestrians on safe street crossing practices
- Provide educational emphasis to older drivers through publications/organizations (e.g., AARP, AAA, AOTA, etc.)
- Develop and promote fitness-to-drive screening and assessment tools relevant to professionals, older drivers, and community members
- Increase and promote the availability of alternative transportation options for older drivers, including how to find and use these alternatives

### EMERGENCY RESPONSE

- Continue to improve emergency response time through multidisciplinary training, better planning, new technologies and enhanced communication
- Educate trauma centers and EMS personnel on emerging technologies being incorporated into vehicles

### ENFORCEMENT

- Increase targeted high-visibility enforcement at high-crash intersections
- Use enforcement to reduce high-risk driving behaviors (e.g., aggressive, substance-impaired, distracted driving, drowsy driving, etc.)
- Expand enforcement activities during nighttime conditions
- Include law enforcement participation in road safety assessments
- Enforce pedestrian crosswalk violations

### ENGINEERING

- Implement innovative intersection designs by:
  - installing roundabouts and J-turns
  - constructing offset turn lanes to reduce obstructed views
  - using traffic calming strategies (e.g., narrowing lanes, etc.)
  - installing pedestrian crossing islands
- Improve intersection awareness by:
  - installing stop-approach transverse rumble strips
  - improving sight distance
  - installing dynamic flashing warning signs
  - improving signage and intersection visibility (e.g., doubling of signs, enhanced marking, use delineators at intersections, etc.)
  - installing or enhancing intersection lighting
- Use proper planning and design of access to public roadways by:
  - closing unnecessary entrances and minimize access points
  - considering restriction of certain turning movements
  - considering geometric improvements to deceleration lanes, acceleration lanes and ramps
- Increase pavement friction and/or consider the application of High Friction Surface Treatment (HFST)
- Install pedestrian crossings, signing and markings
- Install turn lanes (offset design preferred)
- Promote resources for potential intersection treatments to improve safety (e.g., *Unsignalized Intersection Improvement Guide*, etc.)

### TECHNOLOGY

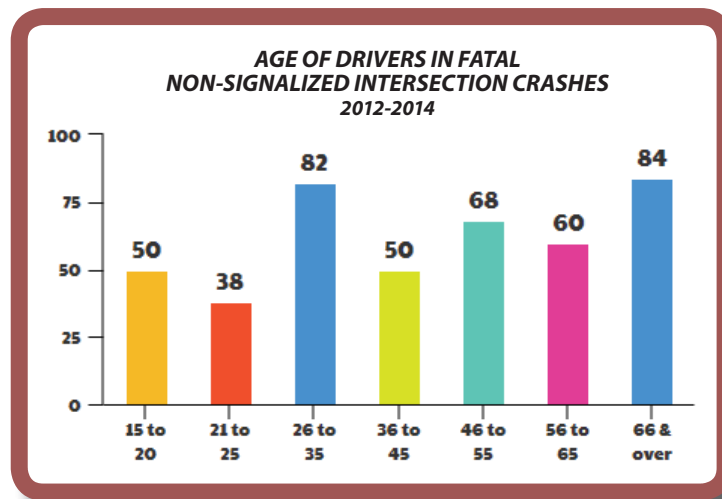
- Support in-vehicle collision warning system and avoidance systems
- Support emerging technologies that reduce distracted driving (e.g., in vehicle, mobile app restrictions, etc.)
- Support vehicle-to-vehicle and vehicle-to-infrastructure communication to warn drivers of imminent safety concerns (e.g., approaching traffic, stop ahead, etc.)

### PUBLIC POLICY/OTHER

- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

### PERFORMANCE MEASURES

- Number of fatalities and serious injuries resulting from non-signalized intersection crashes
- Number of J-turns and/or roundabouts constructed



**72% of FATALITIES  
that  
occurred at  
NON-SIGNALIZED  
INTERSECTIONS  
took place during the  
DAY**

## SIGNALIZED INTERSECTIONS

### THE CHALLENGE

Crashes at signalized intersections are often less severe than those at non-signalized intersections. However, severe crashes can still occur at signalized intersections. In the last three years, 25 percent of fatalities and 34 percent of

serious injuries resulting from intersection crashes occurred at signalized locations. Right angle collisions are the predominant cause of signalized intersection fatalities and serious injuries.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Signalized Intersections	31	25	30	86	423	465	386	1,274

The table below depicts signalized intersection fatalities by roadway designation. Between 2012 and 2014 in Missouri, 44 percent of these fatalities occurred on city streets.

Designation	Fatalities			
	2012	2013	2014	TOTAL
City Street	14	13	11	38
Missouri Numbered	8	2	11	21
U.S. Route	5	5	4	14
Missouri Lettered	2	3	2	7
County Road	0	2	1	3
*Other	2	0	1	3
Total	31	25	30	86

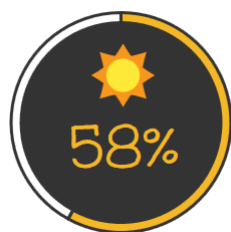
\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts signalized intersection fatalities in addition to meeting one or more of the below conditions. In Missouri, 36 percent of the signalized intersection fatalities involved an older driver.

Crash Type	Fatalities		
	2012	2013	2014
Older Driver (Age 65 & Over) Involved	13	7	11
*Aggressive Driver Involved	8	14	5
Unrestrained Drivers & Occupants	12	5	7
Unlicensed/Improperly Licensed Driver Involved	7	5	9
Young Driver (Age 15-20) Involved	7	1	6
Motorcycle Driver Involved	4	5	5
Commercial Motor Vehicle Driver Involved	5	2	5
Pedestrians	3	5	3
Substance-Impaired Driver Involved	4	4	1

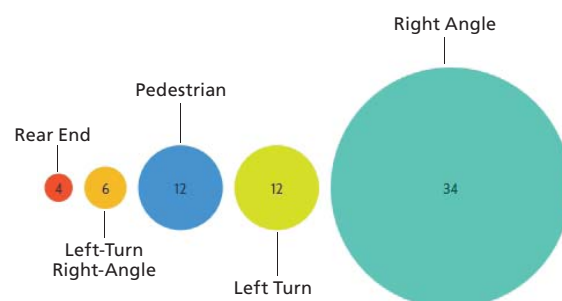
Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



of fatalities that occurred at signalized intersections took place during the DAY

#### FATALITIES AT SIGNALIZED INTERSECTIONS By Crash Classification 2012-2014



## KEY STRATEGIES

### EDUCATION

- Educate older drivers on safe driving practices and crash avoidance techniques
- Educate roadway users:
  - on intersection traffic controls (e.g., flashing yellow arrow, loss of power, etc.)
  - on innovative intersection designs (e.g., diverging diamond, continuous flow intersection, etc.)
  - about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERY TIME
  - the use of safety belts and child safety seats every trip, everyone, EVERY TIME - day and night
  - on following traffic laws, rules of the road/ courteous driving
- Educate pedestrians on safe street crossing practices
- Provide educational emphasis to older drivers through publications/organizations (e.g., AARP, AAA, AOTA, etc.)
- Develop and promote fitness-to-drive screening and assessment tools relevant to professionals, older drivers, and community members
- Increase and promote the availability of alternative transportation options for older drivers, including how to find and use these alternatives

### EMERGENCY RESPONSE

- Continue to improve emergency response time through multidisciplinary training, better planning, new technologies and enhanced communication
- Educate trauma centers and EMS personnel on emerging technologies being incorporated into vehicles

### ENFORCEMENT

- Increase:
  - enforcement to reduce red-light violations (e.g., confirmation lights, automated enforcement, etc.)
  - targeted high-visibility enforcement at high-crash intersections
- Support targeted enforcement on high-incident intersections or roadway segments
- Use enforcement to reduce high-risk driving behaviors (e.g., aggressive, substance-impaired, distracted driving, drowsy driving, etc.)
- Include law enforcement participation in road safety as-

sessments

- Expand enforcement activities during nighttime conditions
- Enforce pedestrian crosswalk violations

### ENGINEERING

- Improve intersection awareness by:
  - improving sight distance
  - improving signage and intersection visibility (e.g., doubling of signs, enhanced markings, use delineators at intersections, etc.)
  - installing or enhancing intersection lighting
  - using retroreflective backplates for signal heads where appropriate
  - using 12-inch LED signal indicators with backplates
  - installing additional signal indicators where sight distance of signal heads may be a concern
- Implement innovative engineering designs by:
  - considering converting signalized intersections to alternative designs
  - diverging diamond interchanges
  - continuous flow intersection designs
  - roundabouts
  - constructing offset turn lanes
- Use traffic calming strategies (e.g., narrowing lanes, etc.)
  - installing pedestrian crossing islands
- Modify signal phasing and timing by:
  - protecting left-turn movements
  - providing adequate clearance times (using Institute of Transportation Engineers guidelines)
  - using technology (dilemma zone protection) to minimize red-light running violations
  - providing flashing yellow arrows for permissive left-turn movements
  - eliminating late-night flash at signalized intersections
  - providing signal timing that accommodates safe pedestrian movements (e.g., leading interval, variable timing, etc.)
- Replace traffic signals with roundabouts
- Use proper planning and design to manage accesses of nearby businesses
- Increase pavement friction and/or consider the application of High Friction Surface Treatment (HFST)
- Install:
  - battery backup systems
  - pedestrian crossings, signing, markings and countdown timers



## TECHNOLOGY

- Support:
  - in-vehicle collision warning system and avoidance systems
  - emerging technologies that reduce distracted driving (e.g., in vehicle, mobile app restrictions, etc.)
  - vehicle-to-vehicle and vehicle-to-infrastructure communication to warn drivers of imminent safety concerns (e.g., red-light running, stop ahead, etc.)
- Use advance, dynamic signal warning system to prepare drivers to stop at a red light ahead
- Dynamically adjust signal timings to account for variable traffic speeds due to weather, congestion, etc.

- Support installation of priority control systems for emergency vehicles

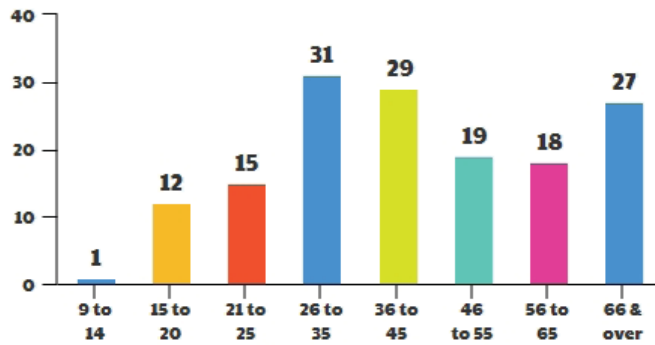
## PUBLIC POLICY/OTHER

- Monitor the use of automated enforcement and encourage best practices
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

## PERFORMANCE MEASURES

- Number of fatalities and serious injuries resulting from signalized intersection crashes

**AGE OF DRIVERS IN FATAL  
SIGNALIZED INTERSECTION CRASHES  
2012-2014**



# EMPHASIS AREA II

## HIGH-RISK DRIVING & UNRESTRAINED OCCUPANTS



Missouri crash data from 2012-2014 was analyzed and several types of high-risk driving behaviors were identified. Seven focus areas are included in this section:

- Aggressive Driving
- Unrestrained Drivers & Occupants
- Substance-Impaired Driving
- Unlicensed/Improperly Licensed Driving
- Young Driver (Age 15-20)
- Distracted/Inattentive Driving
- Drowsy Driving





The table below illustrates a three-year total for fatalities and serious injuries resulting from crashes involving high-risk drivers and unrestrained occupants.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
*Aggressive Driving	434	428	401	1,263	2,485	2,264	2,153	6,902
Unrestrained Drivers & Occupants	396	334	327	1,057	1,449	1,240	1,175	3,864
Substance-Impaired Driving	231	223	198	652	884	744	724	2,352
Unlicensed/Improperly Licensed Driving	153	135	159	447	879	743	772	2,394
Young Driver (Age 15-20) Involved	135	120	114	369	1,261	1,050	932	3,243
Distracted/Inattentive Driving	85	74	61	220	825	722	711	2,258
Drowsy Driving	8	9	19	36	144	115	156	415

Crashes can involve more than one factor (e.g., aggressive driving, substance-impairment, etc.); therefore, adding these numbers together will represent more than the total number of fatalities and serious injuries.

\*Includes speed exceeded limit, driving too fast for conditions, following too close, improper passing, and improper lane usage/change.



## AGGRESSIVE DRIVING

### THE CHALLENGE

**A**ggressive driving can be any one of us, when we make the choice to drive over the speed limit, change lanes several times in a short distance and/or follow too closely. Aggressive driving is a costly decision, often made in an instant, but can have lifelong consequences. According to the National Highway Traffic Safety Administration, aggressive driving is when an individual commits a combination of moving traffic offenses so as to endanger other

persons or property. During the last three years, the combination of the aggressive driving violations contributed to 54 percent of fatalities and 46 percent of serious injuries in Missouri. Speed-related conditions, including speed exceeded limit and too fast for conditions, accounted for the most fatalities of all aggressive driving behaviors. Nearly 40 percent of all Missouri fatalities over the last three years were speed-related.

	Fatalities					Serious Injuries			
	2012	2013	2014	Total		2012	2013	2014	Total
*Speed Related	320	302	276	898		1,588	1,423	1,395	4,406
Improper Lane Usage/Change	162	170	172	504		807	719	722	2,248
Improper Passing	16	26	31	73		85	98	103	286
Following Too Close	16	9	17	42		345	378	302	1,025

Crashes can involve more than one factor (e.g., speeding, improper passing, etc.); therefore, adding these numbers together will represent more than the total number of fatalities and serious injuries.

\* Includes speed exceeded limit and too fast for conditions

The table below depicts aggressive driver involved fatalities by roadway designation. Between 2012 and 2014, 24 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	100	100	103	303
Missouri Lettered	91	84	94	269
City Street	66	69	51	186
County Road	60	71	54	185
U.S. Route	57	51	39	147
Interstate	44	44	43	131
*Other	16	9	17	42
Total	434	428	401	1,263

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts aggressive driver involved fatalities in addition to meeting one or more of the below conditions. For example, the aggressive driver was substance-impaired, unlicensed and/or distracted/inattentive. In Missouri, 70 percent of the driver and occupant fatalities involving an aggressive driver were unrestrained.

Crash Type	Fatalities		
	2012	2013	2014
Unrestrained Drivers & Occupants	237	239	204
Substance-Impaired Driver Involved	162	175	138
Unlicensed/Improperly Licensed Driver Involved	96	88	94
Young Driver (Age 15-20) Involved	58	68	66
Motorcycle Driver Involved	64	40	44
Older Driver (Age 65 & Over) Involved	38	30	42
Distracted/Inattentive Driver Involved	27	26	32
Commercial Motor Vehicle Driver Involved	15	24	14
Pedestrians	8	6	3

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.

**87%**  
of the  
**MOTORCYCLISTS**  
killed in aggressive  
driving involved crashes were the  
**AGGRESSIVE DRIVER!**

## KEY STRATEGIES

### EDUCATION

- Educate roadway users:
  - about the dangers of aggressive driving, the need to follow traffic laws, rules of the road and courteous driving every trip, EVERY TIME
  - on the use of safety belts and child safety seats every trip, everyone, EVERY TIME, day and night
  - on the importance of understanding and accepting full responsibility for their safety, and the safety of others, while driving including the dangers of aggressive driving behaviors
  - on the importance of not being lulled into a false sense of security because of vehicle safety features
- Educate law enforcement on the importance of enforcing posted speed limits
- Educate employers on the benefits of adopting safe driving programs/policies
- Encourage high schools to participate in driver safety programs/campaigns (e.g., *It Only Takes One*, Team Spirit, etc.)
- Use high impact public service announcements including in schools and businesses
- Provide information on physics of speed and stopping distance including the perception and reaction time
- Partner with safety stakeholders to deliver aggressive driving information
- Utilize media and social media to deliver aggressive driver safety messages in educating the public



of aggressive driving  
involved fatalities took  
place during the  
**DAY**

- Distribute:
  - pre- and post- enforcement operation news releases about enforcement safety efforts
  - news releases on highway safety educational campaigns

### EMERGENCY RESPONSE

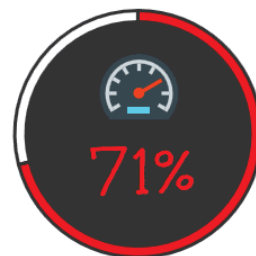
- Utilize first responder personnel in traffic safety education campaigns

### ENFORCEMENT

- Increase targeted enforcement on identified high-incident corridors/roadways by:
  - implementing coordinated statewide high-visibility enforcement day or night
  - targeting speed enforcement in work zones
- Expand selective traffic enforcement programs by:
  - encouraging multijurisdictional high-visibility enforcement
- Develop mobilization campaigns, (e.g., Click It or Ticket/ Drive Sober or Get Pulled Over, etc.) that specifically target aggressive driving behaviors that highlight speed
- Increase the number of law enforcement agencies applying for traffic enforcement funding
- Support high-priority enforcement efforts throughout the year

### ENGINEERING

- Expand the use of CMS/DMS speed monitoring signs by:
  - utilizing safety messaging to alert aggressive drivers
  - collecting and analyzing data from speed monitoring devices and share with highway safety stakeholders
  - using in work zones



of aggressive driving  
involved fatalities  
involved  
**SPEED**

- Implement speed management reduction measures (e.g., narrowing lanes, speed bumps/humps, roundabouts, road diets etc.) by:
  - installing portable rumble strips especially in work zones

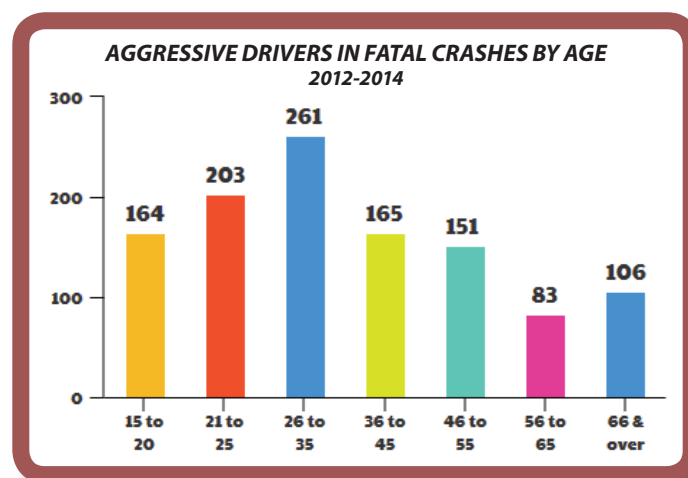
## TECHNOLOGY

- Expand:
  - the use of traffic flow and speed data to identify high-speed corridors
  - use of automated enforcement
- Utilize technology to identify predictable trends
- Procure enhanced traffic probe data to improve analysis of speeds


- Expand the use of roadside devices to deliver safety messages to vehicles/drivers
- Support in-vehicle warning devices (e.g., speed control/monitoring, etc.)

## PERFORMANCE MEASURES


- Number of fatalities and serious injuries involving an aggressive driver
- Operating speeds on identified roadways/corridors







# AGGRESSIVE DRIVERS CAN BE **EXTREMELY DANGEROUS**



**71% of  
UNRESTRAINED DRIVERS  
killed in aggressive driving  
crashes were the  
AGGRESSOR**

## UNRESTRAINED DRIVERS & OCCUPANTS

### THE CHALLENGE

Over the past three years, 66 percent of drivers and occupants killed in crashes in Missouri were unrestrained. The number of unrestrained teens killed in Missouri crashes during the last three years is even higher – 74 percent. When analyzing only the pickup truck drivers and occupants, 82 percent of those killed during the last three years were unrestrained. Missouri's observed safety belt use rate of 80 percent in 2015 is well below the national average of 87 percent. Annually, Missouri conducts both a statewide and a teen observational safety belt use survey.

Properly wearing a safety belt or using a child restraint is the single most effective way to prevent death and reduce

injuries in a crash. According to the National Highway Traffic Safety Administration, safety restraint systems, when utilized correctly, reduce the risk of fatal injuries to front-seat passenger vehicle occupants by 45 percent and reduce the risk of moderate-to-critical injuries by 50 percent. For occupants of light trucks, using safety belts lower the risk of fatal injuries by 60 percent and moderate-to-critical injuries by 65 percent.

The child safety seat and commercial motor vehicle driver safety belt use surveys are conducted periodically. Teen safety belt use is of particular concern. This group's safety belt use was 12 percent lower than the 2014 overall use rate.

	Fatalities					Serious Injuries			
	2012	2013	2014	Total		2012	2013	2014	Total
Vehicle Drivers & Occupants	619	579	578	1,776		4,350	3,925	3,684	11,959
Unrestrained Drivers & Occupants	396	334	327	1,057		1,449	1,240	1,175	3,864

The table below shows unrestrained driver and occupant fatalities by roadway designation. Between 2012 and 2014, 25 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities				Total
	2012	2013	2014		
Missouri Numbered	98	81	87		266
Missouri Lettered	85	76	69		230
County Road	56	54	44		154
U.S. Route	61	43	43		147
City Street	51	48	33		132
Interstate	36	28	36		100
*Other	9	4	15		28
Total	396	334	327		1,057

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below shows unrestrained driver and occupant fatalities in addition to meeting one or more of the below conditions. **Many high-risk drivers make multiple bad choices – 45% of these fatalities were unrestrained drivers who were also driving aggressively.**

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Drivers	170	167	141
Substance-Impaired Drivers	111	103	88
Unlicensed/Improperly Licensed Drivers	54	52	47
Older Driver (Age 65 & Over) Involved	38	23	41
Young Driver (Age 15-20) Involved	39	36	25
Distracted/Inattentive Driver Involved	28	20	16
Commercial Motor Vehicle Driver Involved	7	7	10

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.

**THE LARGEST AGE GROUP OF UNRESTRAINED DRIVER AND OCCUPANT FATALITIES WERE THOSE BETWEEN THE AGE OF 26-35**

## KEY STRATEGIES

### EDUCATION

- Educate roadway users:
  - and passengers on the importance of understanding and accepting full responsibility for their safety, and the safety of others, while driving/riding unrestrained
  - on following traffic laws, rules of the road and courteous driving
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME, day and night
- Educate:
  - GDL recipients, parents/guardians, schools and employers about the mandatory safety belt use component of the law (i.e. *First Impact Program*)
  - employers on the importance of educating their employees on safe driving practices, (e.g., proper use of safety belts, etc.)
  - parents, caregivers and grandparents about proper selection and installation of child safety and booster seats
  - public on options for individuals with special needs (e.g., safety belt extenders)
  - older drivers on properly wearing their safety belt
  - drivers about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERYTIME
- Expand:
  - the number of child safety seat inspection stations and recruit and certify additional child passenger safety technicians
  - collaboration with hospitals and healthcare professionals to educate unrestrained occupants following an injury crash on the importance of properly using safety belts
  - collaboration with hospitals and healthcare professionals to educate parents on the proper occupant protection usage of child safety seats
- Use media to educate drivers on the potential outcomes of being unrestrained in a vehicle during a crash
- Continue to educate law enforcement about the Graduated Driver License (GDL) statute and the provision that defines safety belt enforcement as a primary violation
- Continue to expand public information and education campaigns to educate the general public and high-risk groups

(pickup truck and teen occupants) about the importance of safety belt use

### EMERGENCY RESPONSE

- Utilize first responder personnel in traffic safety education on importance of safety belt and child safety seat usage

### ENFORCEMENT

- Expand enforcement activities during nighttime conditions for all occupant protection laws
- Maintain heavy and steady enforcement efforts of occupant protection throughout the year
- Aggressively:
  - enforce the primary safety belt component of the GDL law
  - enforce the child safety seat and booster seat laws
- Encourage:
  - law enforcement to enact a zero tolerance policy when enforcing the secondary occupant protection law through collaboration with Missouri Police Chiefs Association, Missouri Sheriffs Association, etc.
  - use of coordinated multijurisdictional enforcement activities addressing high-risk driving behaviors (e.g., use of safety belts, aggressive driving, speeding, substance-impaired driving, etc.)
- Increase:
  - the emphasis on special occupant protection mobilizations that include public information campaigns and selective traffic enforcement programs (e.g., *Click It or Ticket*, *Drive Sober or Get Pulled Over*, etc.)
  - the number of law enforcement agencies applying for traffic enforcement funding

### ENGINEERING

- Increase use of dynamic message signs that encourage restraint use

### TECHNOLOGY

- Support implementation of new technologies on vehicles (e.g., features that disable a vehicle unless the safety belt system is properly used, etc.)



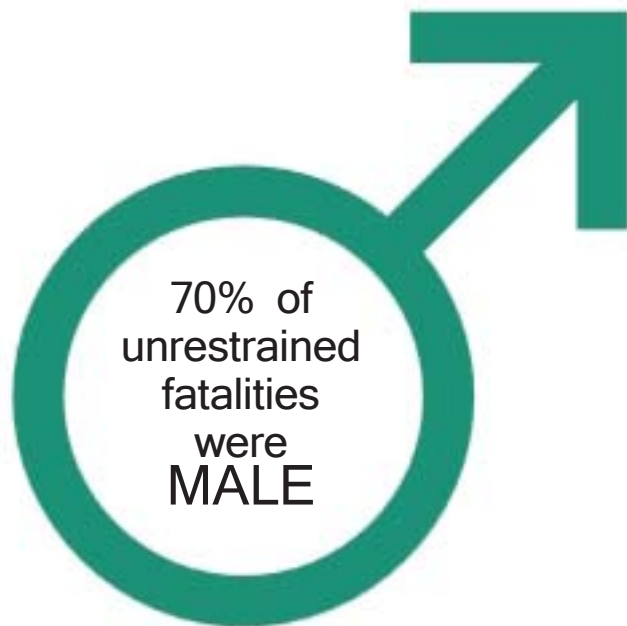


## PUBLIC POLICY/OTHER

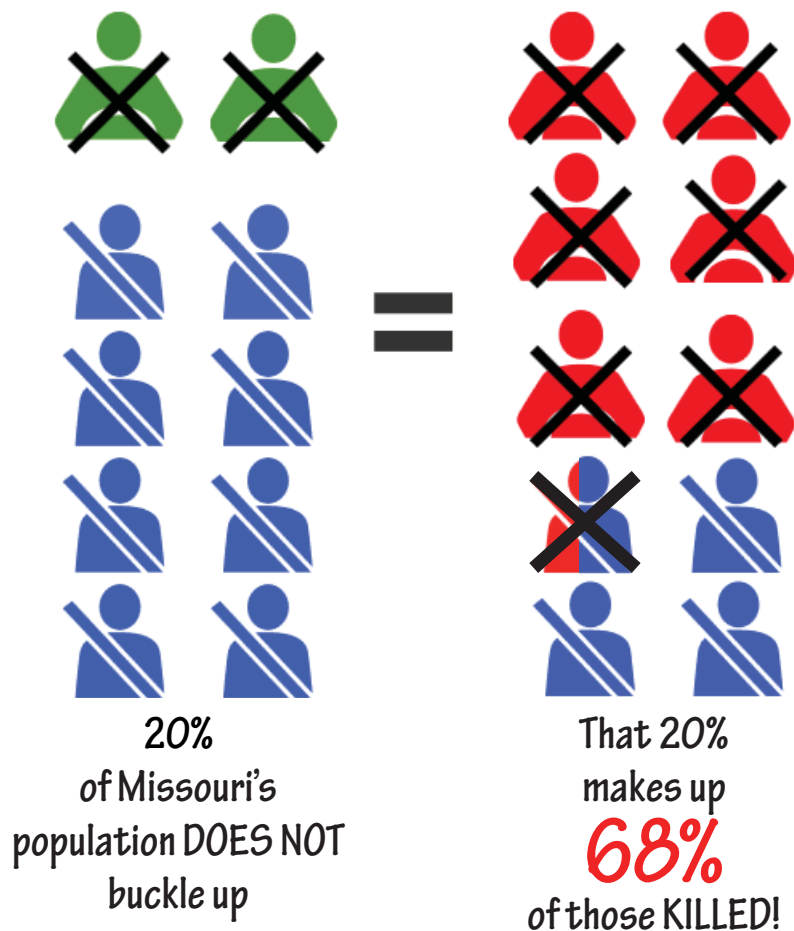
- Enact a primary safety belt law that includes all seating positions
- Expand the number of local primary safety belt ordinances
- Educate employers on the benefits of adopting safe driving programs/policies (e.g., mandatory use of safety belts, ban cell phone use while driving, etc.)
- Encourage insurance companies to expand safe driving incentive programs
- Increase fines and penalties for current occupant protection laws including all vehicles regardless of weight

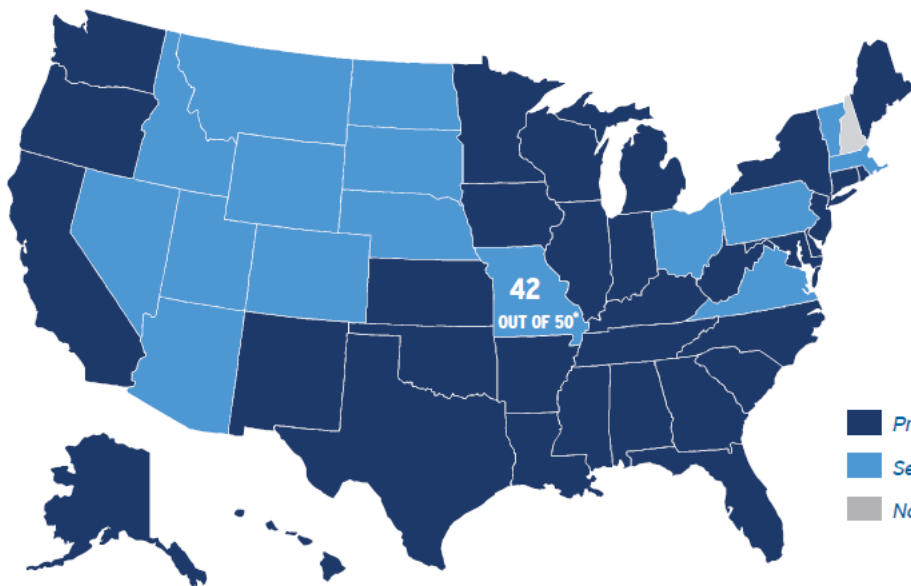
## PERFORMANCE MEASURES

- Rate of safety belt/child restraint use by:
  - Statewide vs. national
  - Teens
  - Children 8 years of age and under
  - Commercial motor vehicle drivers
- Number of unrestrained vehicle occupant fatalities and serious injuries
- Percent of unrestrained drivers killed in crashes
- Percent of unrestrained teen drivers (15-19) killed in crashes
- Number of local primary safety belt ordinances



of unrestrained driver & occupant fatalities took place during the  
**DAY**





## SAFETY BELT USE

National Rate - 89%

Missouri Rate - 81.4%

Missouri Teen Rate - 70.4%

***\*Only eight states rank lower in safety belt use than Missouri.***

- Primary Law States - Average Safety Belt Usage Rate 90%
- Secondary Law States - Average Safety Belt Usage Rate 82%
- No Law - Safety Belt Usage Rate 70%

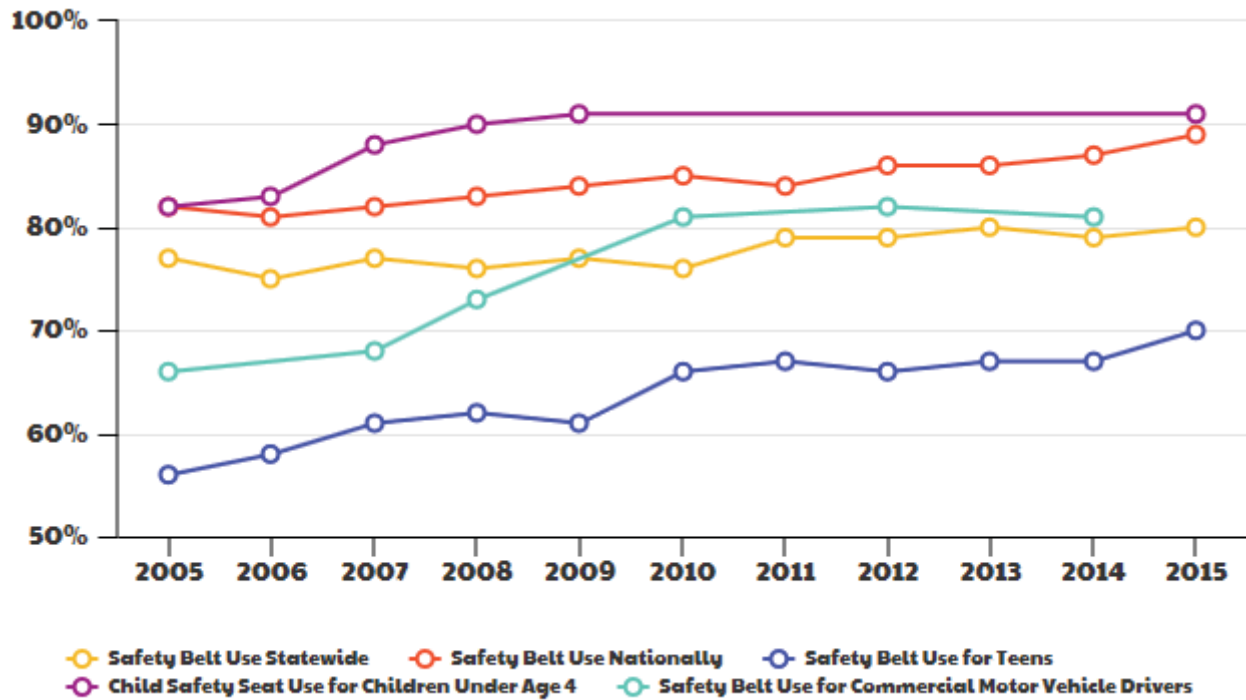


# 96%

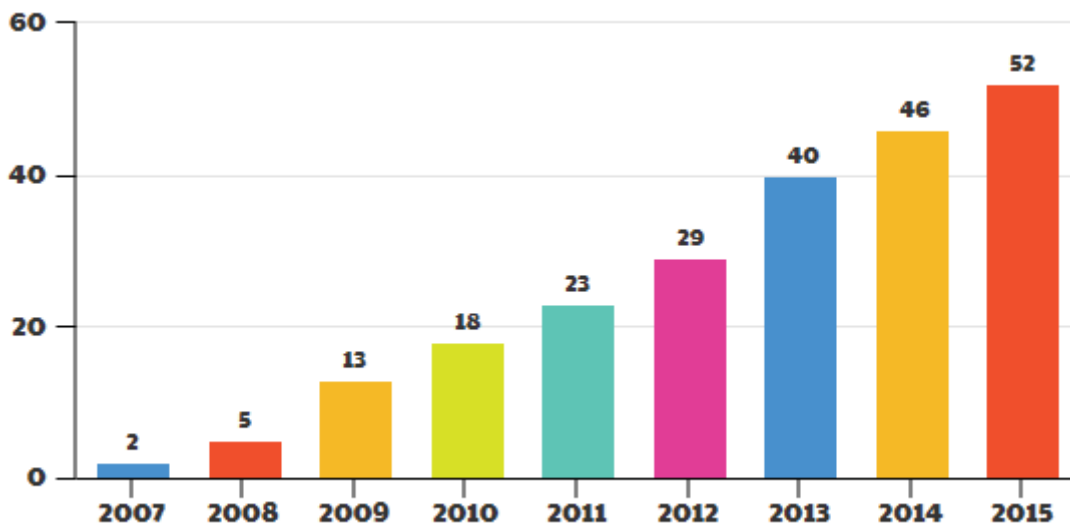
of vehicle driver and  
occupant fatalities who were



2005-2015 RATE OF SAFETY BELT USE BY GROUP TYPE



2007-2015 CUMULATIVE NUMBER OF LOCAL PRIMARY SAFETY BELT ORDINANCES





*Why do YOU  
buckle up?*





## SUBSTANCE-IMPAIRED DRIVING

### THE CHALLENGE

Substance-impaired drivers contributed to 28 percent of Missouri's traffic crash fatalities during the past three years. Alcohol remains the primary contributor to substance-impaired driving crashes; however, the number of persons under the influence of prescription medications and/or illicit drugs continues to increase. Male drivers were more

likely than females to be involved in substance-impaired driving crashes. During the past three years, males were responsible for 83 percent of substance-impaired driving fatalities. Fourteen percent of the children less than 15 years of age who were killed in motor vehicle crashes over the last three years, were riding with a substance-impaired driver.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Substance-Impaired Driver Involved	231	223	198	652	884	744	724	2,352

The table below depicts substance-impaired driver involved fatalities by roadway designation. Between 2012 and 2014, 47 percent of these fatalities occurred on Missouri numbered or lettered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	59	45	50	154
Missouri Lettered	52	57	45	154
County Road	35	43	32	110
City Street	37	34	25	96
U.S. Route	26	26	19	71
Interstate	18	15	21	54
*Other	4	3	6	13
Total	231	223	198	652

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts substance-impaired driver involved fatalities in addition to meeting one or more of the below conditions. In Missouri, 73 percent of the fatalities involved a substance-impaired driver who was also driving in an aggressive manner.

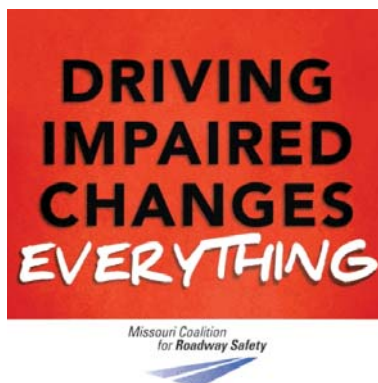
Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	162	175	138
Unrestrained Drivers & Occupants	148	151	122
Unlicensed/Improperly Licensed Driver Involved	60	52	68
Young Driver (Age 15-20) Involved	19	31	15
Motorcycle Driver Involved	24	16	21
Distracted/Inattentive Driver Involved	11	20	9
Older Driver (Age 65 & Over) Involved	8	2	9
Pedestrians	4	2	3
Commercial Motor Vehicle Driver Involved	5	2	2

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



of the substance-impaired  
driving involved  
fatalities took place at  
**NIGHT**



## KEY STRATEGIES

### EDUCATION

- Continue:
  - to educate the roadway users, employers, alcohol vendors and servers on the dangers of substance-impaired driving and to encourage patrons on the safety benefits of using designated drivers, taxis, Uber, etc.
  - offering server training programs
- Educate:
  - hospital and emergency medical service (EMS) workers on current state laws relating to substance-impaired driving blood draws
  - all drivers on the importance of understanding and accepting full responsibility for their safety, and the safety of others, while driving including the dangers of substance-impaired driving behaviors
  - on the use of safety belts - every trip, everyone, EVERY TIME, day and night
- Update and implement the statewide Impaired Driving Strategic Plan
- Provide information to the judicial community about Substance Abuse Traffic Offenders Program

### EMERGENCY RESPONSE

- Develop blood-draw policies for use with EMS, hospitals and law enforcement agencies
- Encourage pharmacies and physicians to educate patients on the impairment effects of prescription medications while driving

### ENFORCEMENT

- Encourage:
  - multi-agency initiatives and task forces to identify target locations, times, etc. for enforcement efforts
  - development /use of specialized DWI units
  - law enforcement to participate in the youth impaired driving mobilizations
  - local agencies to streamline the paperwork used by the arresting officer for processing a DWI
- Develop:
  - blood-draw policies for use with EMS, hospitals and law enforcement agencies
  - new checkpoint strategies (e.g., low man-power checkpoints, ghost checkpoint, etc.)

- Maintain and/or increase the number of sobriety checkpoints
- Expand and strengthen the Drug Evaluation and Classification program (e.g., drug recognition experts (DRE), prosecutor training, etc.)
- Increase the number of:
  - law enforcement/judicial participants in taking Advanced Roadside Impaired Driving Enforcement training
  - prosecutors attending checkpoints to assist in expediting search warrants if necessary
  - law enforcement jurisdictions participating in no refusal and/or electronic blood draw search warrant programs
- Increase law enforcement participation in substance-impaired driving enforcement and specialized mobilization efforts

### TECHNOLOGY

- Increase use of ignition interlock devices
- Explore the ability to file Alcohol Influence Reports (AIR) electronically for all law enforcement agencies (through the use of breath instrument technology)
- Encourage:
  - deployment of in-vehicle sensors to inhibit substance-impaired driving
  - the development of drug detection devices for use by law enforcement at roadside

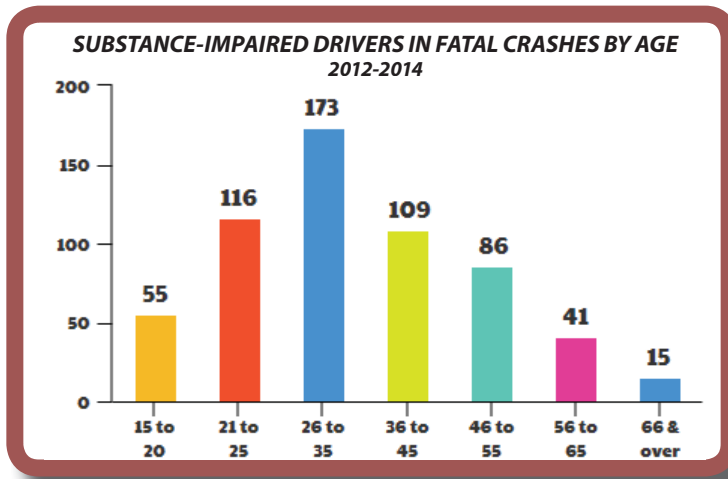
### PUBLIC POLICY/OTHER

- Maintain and enhance substance-impaired driving laws
- Work with Substance-Impaired Driving Subcommittee to access and evaluate Missouri's substance-impaired driving laws
- Enact legislation requiring ignition interlocks for first-time offenders
- Strengthen penalties for refusing a breath test and/or chemical test
- Encourage:
  - enactment of local substance-impaired driving ordinances (e.g., open containers, prohibit minors in bars, etc.)
  - implementation of phlebotomy program by law enforcement agencies
- Improve:
  - process for obtaining warrants in breath test refusal cases
  - blood draw search warrant process

- Improve reporting of DWI offenses by law enforcement, prosecutors and courts by:
  - utilizing the DWI Tracking System (DWITS)
- Increase conviction rates on original charge by:
  - increasing judicial and prosecutor training
- Increase monitoring of DWI offenders through use of DWI Courts and bond conditions
- Explore implementation of the 24/7 Sobriety Testing Program
- Enact a primary safety belt law that includes all seating positions

## PERFORMANCE MEASURES

- Number of fatalities and serious injuries involving a substance-impaired driver
- Number of fatalities involving an alcohol-impaired driver with .08 BAC or greater
- Number of fatalities and serious injuries involving a drug-impaired driver (other than alcohol)
- Establish a baseline of fatal substance-impaired drivers
- Number of ignition interlock devices in use





A nighttime photograph showing a police officer in a blue uniform and cap talking to a man in a plaid shirt and jeans who is standing next to a red car. Another police officer is standing to the right, looking down. The scene is dimly lit, with the car's headlights and the officers' uniforms providing some illumination.

**During the past  
three years,  
84 PERCENT  
of  
substance-impaired  
drivers in fatal  
crashes were  
MALE**

## UNLICENSED/IMPROPERLY LICENSED DRIVING



### THE CHALLENGE

In Missouri, during the past three years, 19 percent of fatal crashes involved drivers who were unlicensed, revoked or suspended. Motorcycle operators are of particular concern because unlicensed/improperly licensed motorcycle drivers were involved in 38 percent of fatal motor-

cycle involved crashes. Young drivers aged 15-20 made up 10 percent of the unlicensed/improperly licensed drivers involved in fatal crashes between 2012 and 2014 in Missouri. National estimates indicate that 75 percent of suspended/revoked drivers continue to drive.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Unlicensed/Improperly Licensed Driver Involved	153	135	159	447	879	743	772	2,394

The table below depicts unlicensed/improperly licensed driver involved fatalities by roadway designation. Between 2012 and 2014, 27 percent of these fatalities occurred on city streets in Missouri.

Designation	Fatalities			
	2012	2013	2014	Total
City Street	48	36	36	120
Missouri Lettered	20	22	33	75
Missouri Numbered	30	20	24	74
Interstate	16	18	25	59
County Road	16	24	16	56
U.S. Route	19	14	17	50
*Other	4	1	8	13
Total	153	135	159	447

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts unlicensed/improperly licensed driver involved fatalities in addition to meeting one or more of the below conditions. In Missouri, 62 percent of the fatalities involved an unlicensed/improperly licensed driver who was also driving aggressively.

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	96	88	94
Unrestrained Drivers & Occupants	80	76	79
Substance-Impaired Driver Involved	60	52	68
Motorcycle Driver Involved	46	23	32
Young Driver (Age 15-20) Involved	13	14	20
Distracted/Inattentive Driver Involved	12	12	9
Pedestrians	5	8	4
Older Driver (Age 65 & Over) Involved	1	4	4
Commercial Motor Vehicle Driver Involved	3	2	2

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



## KEY STRATEGIES

### EDUCATION

- Public service announcements addressing unlicensed/improperly licensed drivers
- Increase emphasis in driver education materials on offenses that can result in revocation of licenses
- Educate unlicensed/improperly licensed drivers on alternative means of transportation

### ENFORCEMENT

- Conduct safety checkpoints in high-risk areas
- Identify methods to encourage drivers who have been suspended or revoked, and whom are eligible to reinstate their license

### TECHNOLOGY

- Encourage development of systems to link title and license plate registration information and proof of insurance to the driver license record
- Increase use of license plate readers to help identify suspended or revoked drivers

### PUBLIC POLICY/OTHER

- Develop a consensus for legislation to create alternative sanctions for the suspended or revoked driver (e.g., impound vehicle, seize license plates, etc.)
- Revise the motorcycle operator learner's permit to be valid for a maximum of 90 days with a maximum of one renewal
- Eliminate non-driving related reasons that driver licenses are suspended or revoked
- Revise Missouri statutes regarding license suspensions and revocations to include stiffer penalties
- Expand use of separate court dockets to address suspended and revoked drivers
- Enact a primary safety belt law that includes all seating positions

### PERFORMANCE MEASURES

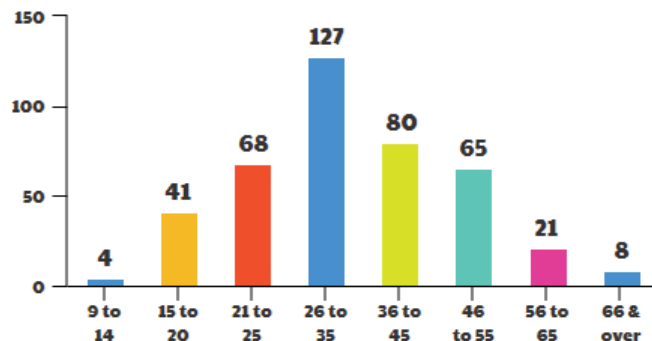
- Number of fatalities and serious injuries involving an unlicensed/improperly licensed driver
- Number of fatalities and serious injuries involving an unlicensed/improperly licensed motorcycle operator



of unlicensed/improperly  
licensed driving involved  
fatalities took place  
during the  
**NIGHT**



**UNLICENSED/IMPROPERLY LICENSED DRIVERS  
INVOLVED IN FATAL CRASHES BY AGE  
2012-2014**





## YOUNG DRIVERS (15-20 YEARS OF AGE)

### THE CHALLENGE

Traffic crashes are the leading cause of death among youth in Missouri, accounting for nearly 12 percent of traffic fatalities during the last three years. Although only comprising approximately 8 percent of Missouri licensed drivers, young drivers were involved in nearly 20 percent of fatal and serious injury crashes during the last three years. These



early driving years are of particular concern because of driver inexperience and the high frequency of risky behaviors such as speeding, distracted and drowsy driving, alcohol/drug use and failing to use safety belts.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Young Driver (Age 15-20) Involved	135	120	114	369	1,261	1,050	932	3,243

The table below shows young driver involved fatalities by roadway designation. Between 2012 and 2014, 22 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	30	18	32	80
City Street	28	24	20	72
County Road	18	24	21	63
Missouri Lettered	24	21	18	63
U.S. Route	24	22	10	56
Interstate	8	9	8	25
*Other	3	3	5	10
Total	135	120	114	369

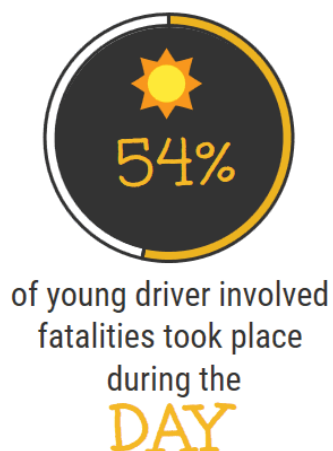
\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below shows young driver involved fatalities in addition to one or more of the below conditions. In Missouri, 68 percent of the driver and occupant fatalities involving a young driver were unrestrained. When evaluating only the young drivers who were killed, 73 percent were unrestrained. Additionally, 53 percent of the fatalities involved a young driver who was also driving in an aggressive manner.

Crash Type	Fatalities		
	2012	2013	2014
Unrestrained Drivers & Occupants	77	64	57
*Aggressive Driver Involved	61	68	66
Substance-Impaired Driver Involved	19	31	15
Unlicensed/Improperly Licensed Driver Involved	13	14	20
Distracted/Inattentive Driver Involved	17	10	8
Pedestrians	13	5	5
Commercial Motor Vehicle Driver Involved	6	6	4
Motorcycle Driver Involved	5	1	4

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



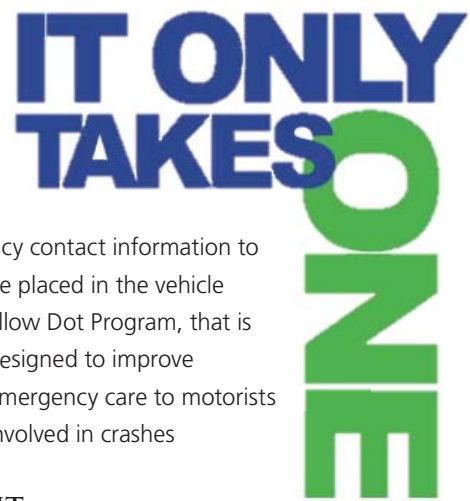
## KEY STRATEGIES

### EDUCATION

- Educate parents/guardians:
  - on the importance of purchasing safety-enhanced vehicles for their young drivers
  - about the availability of in-vehicle driver monitoring devices
  - on the importance of open communication with their young drivers regarding high-risk driving behaviors including parent/young driver agreements (e.g., distractions/drowsiness, substance-impairment, safety belt use, driver responsibility for passengers, etc.)
  - on apps that can be installed on phones to track driving performance for their young driver
- Educate:
  - on the use of safety belts - every trip, everyone, EVERY TIME, day and night
  - roadway users on following traffic laws, rules of the road/courteous driving
  - judges and prosecutors on the importance of enforcing the GDL law
  - young drivers on all aspects of safe driving and rules of the road (e.g., aggressive, distracted, substance-impaired, fatigued driving, safety belt use, etc.)
  - all drivers and passengers on the importance of understanding and accepting full responsibility for their safety, and the safety of others, while driving/riding
- Expand:
  - the availability of driver education programs for young drivers (e.g., classes, web-based, eLearning, etc.)
  - peer-to-peer training on safe driving habits and being a safe/respectful passenger
- Encourage:
  - parents/guardians, schools and employers to participate in the *First Impact* and *TRACTION* programs
  - young drivers to participate in automobile insurance provided safety incentive programs
- Utilize web-based and eLearning driver training education programs starting before age 15

### EMERGENCY RESPONSE

- Develop a plan to expand the awareness and use of In Case of Emergency (ICE) to encourage people to enter emergency contact information in their mobile phone



- Encourage:
  - emergency contact information to be placed in the vehicle
  - use of Yellow Dot Program, that is designed to improve emergency care to motorists involved in crashes

### ENFORCEMENT

- Encourage:
  - strict enforcement of the GDL law (e.g., curfew, safety belt use, passenger restrictions, focusing on graduated driver's license charge codes, etc.)
  - strict enforcement of texting law
  - use of phone disabling technology while driving
- Explore ways to track and evaluate enforcement of the GDL law
- Expand law enforcement participation in the Youth Safety Belt Enforcement Campaign initiative and other youth enforcement campaigns

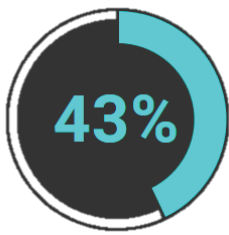
### PUBLIC POLICY/OTHER

- Enhance GDL law components to include passenger restrictions, stricter curfews, increased supervised driving hours and restricted cell phone use
- Explore and expand driver testing requirements and procedures
- Reinstitute drivers education courses in all high schools
- Enact legislation requiring behind-the-wheel drivers education for all new drivers
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

### PERFORMANCE MEASURES

- Number of young driver-involved fatalities and serious injuries
- Number of young aggressive driver-involved fatalities and serious injuries
- Number of young driver (age 15-20) fatalities and serious injuries resulting from crashes

During 2012-2014, there were 369 young driver involved fatalities:



was the **YOUNG DRIVER**



was the **YOUNG DRIVER** killed in single vehicle crashes







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### **GRADUATED DRIVER LICENSING (GDL)**

The single most effective tool that you as a parent can utilize to keep your teen driver safe on the roadway.

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# FIRST IMPACT

*preparing new drivers for the road ahead*



**93% OF TEENS KILLED IN  
MISSOURI TRAFFIC CRASHES**

were killed in vehicles driven  
by another teenager.

## DISTRACTED/INATTENTIVE DRIVING

### THE CHALLENGE

**D**istracted driving is a diversion of the driver's attention from activities critical to safe driving. There is a growing body of evidence which suggests driver distractions, both inside and outside of the vehicle, are becoming increasingly large contributors to traffic crashes.

While many drivers drive distracted, it is difficult for law enforcement to determine after a crash. Without specifically checking cell phone records, a crash is often attributed to other circumstances. A 2011 study (Crashes Involving Cell Phones) by the National Safety Council found that cell phone usage may be underreported by as much as 50 percent.



It is estimated that drivers engage in a secondary task between one-quarter and one-half of the time they drive. According to a recent Naturalistic Driving study by Virginia Tech Transportation Institute, a risk for being involved in a critical incident is 23 times greater if the driver texts while driving. During the last three years, 10 percent of Missouri fatal crashes involved a distracted driver. Twenty-six percent of the distracted drivers involved in fatal crashes in the last three years were between 15 and 24 years of age.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
*Distracted/Inattentive Driving Involved	85	74	61	220	825	722	711	2,258

*\*In 2012, Missouri adopted a new crash report which doesn't allow for comparison to previous reports associated with distracted driving.*

The table below depicts distracted/inattentive driving involved fatalities by roadway designation. Between 2012 and 2014, 46 percent of these fatalities occurred on Missouri numbered or lettered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	22	16	13	51
Missouri Lettered	13	18	19	50
U.S. Route	18	11	7	36
County Road	15	7	8	30
Interstate	5	14	8	27
City Street	10	7	5	22
*Other	2	1	1	4
Total	85	74	61	220

*\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.*

The table below depicts distracted/inattentive driving involved fatalities in addition to meeting one or more of the below conditions. In Missouri, 70 percent of the driver and occupant fatalities involving a distracted/inattentive driver were unrestrained.

Crash Type	Fatalities		
	2012	2013	2014
Unrestrained Drivers & Occupants	46	37	30
*Aggressive Driver Involved	27	26	32
Substance-Impaired Driver Involved	11	20	9
Unlicensed/Improperly Licensed Driver Involved	12	12	9
Young Driver (Age 15-20) Involved	15	8	5
Older Driver (Age 65 & Over) Involved	8	8	10
Commercial Motor Vehicle Driver Involved	8	9	6
Pedestrians	11	4	2
Motorcycle Driver Involved	6	4	4

*Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.*

*\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.*

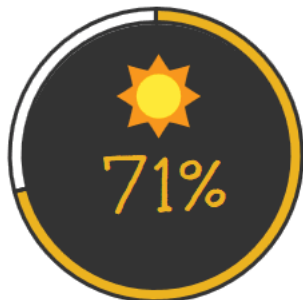
## KEY STRATEGIES

### EDUCATION

- Continue to expand public information campaigns to educate the roadway user on the dangers of distracted driving
- Encourage:
  - use of hands-on distracted driving simulators
  - employers to strengthen distracted driving policies and consequences for those who text and drive, use cell phones and other electronic devices while driving
- Educate:
  - on the use of safety belts - every trip, everyone, EVERY TIME, day and night
  - drivers on the importance of avoiding all distractions, (e.g., eating, drinking, grooming, etc.)
  - all drivers and passengers on the importance of understanding and accepting full responsibility for their safety, and the safety of others while driving/riding
  - drivers about the dangers of aggressive, distracted, substance-impaired, and fatigued driving during every trip, EVERY TIME
- Provide:
  - a model policy on distracted driving
  - information on limitations of current vehicle technology
- Seek opportunities in businesses, schools and community organizations to provide presentations on distracted driving

### ENFORCEMENT

- Increase enforcement of traffic violations that are a result of distracted/inattentive driving



of distracted driving  
involved fatalities took  
place during the  
**DAY**

- Encourage:
  - accurate and complete crash reports through MSHP crash report training
  - strict enforcement of texting law
  - use of phone disabling technology while driving

### ENGINEERING

- Continue:
  - installation of center and edgeline rumble strips/stripes and median guard cables
  - use of Safety Edge™
- Expand:
  - clear zones by removing or shielding trees and utility poles
  - installation/width of paved shoulders
- Consider transverse rumble strips to alert drivers of upcoming decision points (e.g., intersections, crosswalks, etc.)
- Utilize audible/visual warning devices and alarms in work zones, (e.g., portable rumbles, audible alarms, worker personal protection equipment (PPE), etc.)

### TECHNOLOGY

- Support the use of in-vehicle distracted driver detection monitoring devices
- Encourage use of smartphone technology to minimize distracted driving, (e.g., use cell phone provider apps that prevent cell phone use while driving, etc.)

### PUBLIC POLICY/OTHER

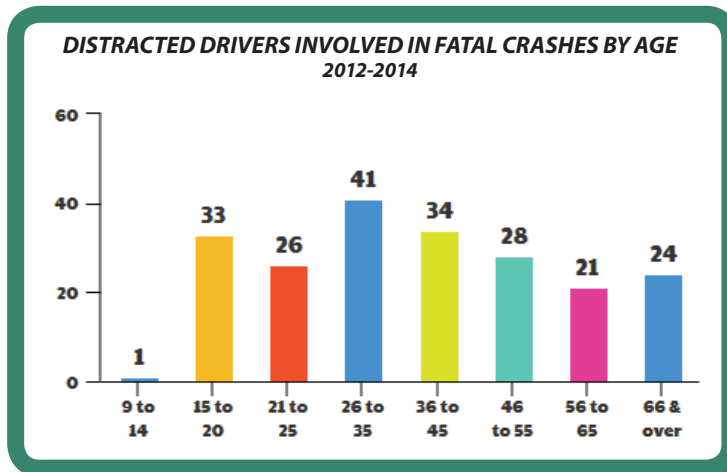
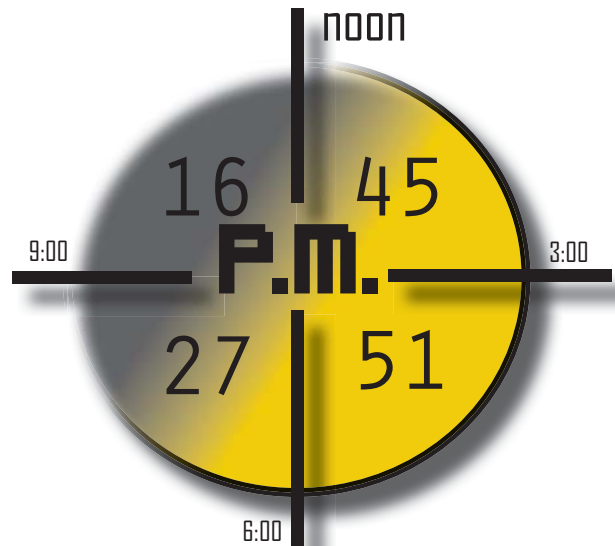
- Enact legislation:
  - requiring an all-driver texting ban
  - to restrict the use of hand-held devices for all drivers
- Enhance the GDL law to ban cell phone use by beginner drivers
- Access research from SHRP2 Naturalistic Driving Study
- Use dynamic message signs to communicate the dangers of distracted driving
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

### PERFORMANCE MEASURES

- Number of fatalities and serious injuries involving a distracted/inattentive driver
- Number of fatalities and serious injuries involving a driver using a communication/electronic device



# Number of Distracted Driving Involved Fatalities by Time of Day



**“Sending or receiving a text takes a driver’s eyes from the road for an average of 4.6 seconds - the equivalent (at 55 mph) of driving the length of an entire football field, BLIND.”**

**It's just  
not  
worth  
it!**



## DROWSY DRIVING

### THE CHALLENGE

**D**rowsy driving impairs performance and can ultimately lead to falling asleep at the wheel. Drowsiness impairs reaction time, vigilance, attention and information processing. Research shows that young male drivers, shift

workers whose sleep is disrupted by working at night or by working long or irregular hours, and people with untreated sleep disorders are at greatest risk for drowsy driving.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Drowsy Driver Involved	8	9	19	36	144	115	156	415

The table below depicts drowsy driving involved fatalities by roadway designation. Between 2012 and 2014, 28 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	3	2	5	10
Interstate	1	3	5	9
U.S. Route	2	2	4	8
Missouri Lettered	1	1	2	4
City Street	0	1	2	3
*Other	1	0	1	2
<b>Total</b>	<b>8</b>	<b>9</b>	<b>19</b>	<b>36</b>

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

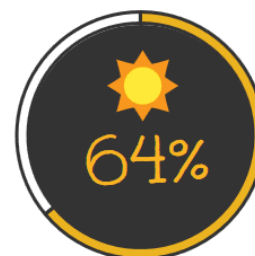
The table below depicts drowsy driving involved fatalities in addition to meeting one or more of the below conditions. In Missouri, 59 percent of the driver and occupant fatalities involving a drowsy driver were unrestrained vehicle occupants.

Crash Type	Fatalities		
	2012	2013	2014
Unrestrained Drivers & Occupants	3	3	11
Older Driver (Age 65 & Over) Involved	2	3	4
*Aggressive Driver Involved	2	1	5
Substance-Impaired Driver Involved	2	2	2
Pedestrians	1	0	3
Young Driver (Age 15-20) Involved	0	2	1
Commercial Motor Vehicle Driver Involved	1	1	1
Unlicensed/Improperly Licensed Driver Involved	0	1	0

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.

*"It may be easy to assume that drowsy driving typically occurs at night, however, Missouri crash statistics show that drowsy driving is a concern at all times."*



of drowsy driver involved fatalities took place during the **DAY**

## KEY STRATEGIES

### EDUCATION

- Continue to expand public information campaigns, including social media, to educate the roadway user on the dangers of drowsy driving and how to recognize the warning signs
- Educate:
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME - day and night
  - the public on the dangers of sleep deprivation
  - all drivers on the importance of understanding and accepting full responsibility for their safety, and the safety of others, while driving drowsy
- Encourage employers, especially those with multiple shifts, to educate employees about drowsy driving
- Seek opportunities in businesses, schools and community organizations to provide presentations on drowsy driving

### ENFORCEMENT

- Increase enforcement of traffic violations that are a result of drowsy driving
- Encourage accurate and complete crash reports through MSHP crash report training

### ENGINEERING

- Continue:
  - installation of center and edgeline rumble strips/stripes and median guard cables
  - use of Safety Edge™
- Consider transverse rumble strips to alert drivers of upcoming decision points (e.g., intersections, crosswalks, etc.)
- Increase:
  - number of rest area options on Missouri's roadways
  - paved shoulders
- Expand clear zones by removing or shielding trees and utility poles

### TECHNOLOGY

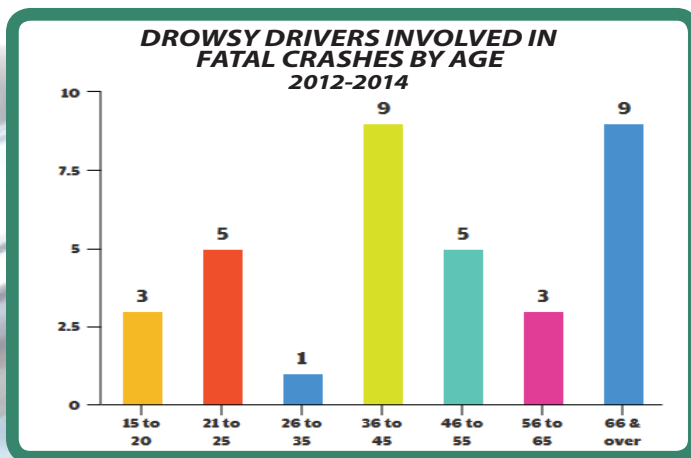
- Encourage use of in-vehicle drowsy driver detection monitoring devices
- Use Dynamic Message Signs to alert drivers on the dangers of drowsy driving

### PUBLIC POLICY/OTHER

- Access research from SHRP2 Naturalistic Driving Study
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

### PERFORMANCE MEASURES

- Number of fatalities and serious injuries involving a drowsy driver





# EMPHASIS AREA III

## SPECIAL VEHICLES



Missouri crash data from 2012-2014 was analyzed and the three vehicle types listed below are of special interest in the Blueprint. Crashes involving these vehicles often pose increased risk of fatalities or serious injuries and receive elevated media attention.

- Commercial Motor Vehicles (CMVs)
- All-Terrain Vehicles (ATVs)/  
Utility Vehicles (UTVs)
- School Buses



The table below illustrates a three-year total for fatalities and serious injuries resulting from crashes involving these special vehicles.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Commercial Motor Vehicles	113	99	113	325	389	402	371	1,162
All-Terrain Vehicles (ATVs)/Utility Vehicles (UTVs)	8	21	17	46	97	70	72	239
School Buses	3	3	4	10	15	19	14	48



## COMMERCIAL MOTOR VEHICLES

### THE CHALLENGE

Commercial motor vehicles make up approximately 20 percent of all traffic on Missouri interstates. Between 2012 and 2014, CMVs were involved in 9 percent of all traffic crashes, 13 percent of fatal traffic crashes, and 7 percent of serious injury crashes in Missouri. It's a common

misconception that the CMV driver is usually responsible for the crash. During the last three years, when analyzing the CMV drivers involved in fatal and serious injury crashes, 55 percent of the other vehicle drivers, pedestrians or bicyclists involved, were responsible for those crashes.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Commercial Motor Vehicle Involved	113	99	113	325	389	402	371	1,162

The table below depicts commercial motor vehicle driver involved fatalities by roadway designation. Between 2012 and 2014, 29 percent of these fatalities occurred on interstates.

Designation	Fatalities			
	2012	2013	2014	Total
Interstate	31	29	33	93
Missouri Numbered	23	24	29	76
U.S. Route	28	20	24	72
Missouri Lettered	10	14	17	41
City Street	10	4	8	22
*Other	6	4	2	12
County Road	5	4	0	9
Total	113	99	113	325

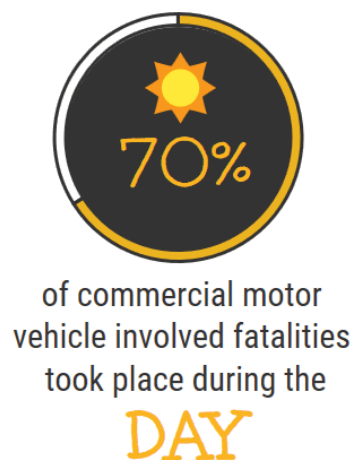
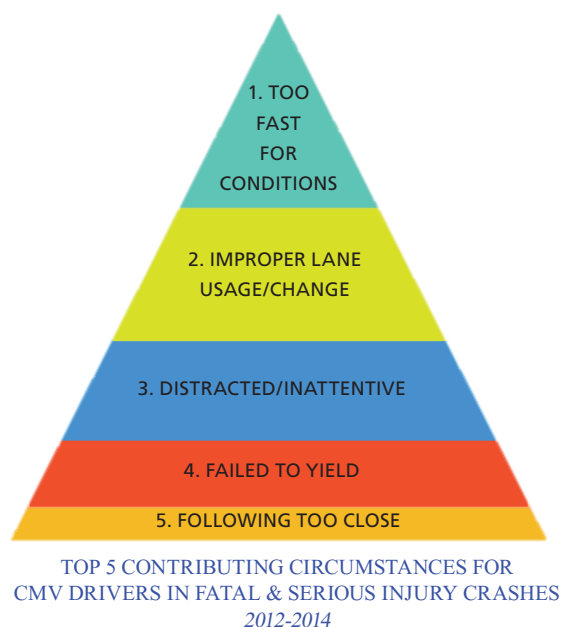
\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts commercial motor vehicle driver involved fatalities in addition to meeting one or more of the below conditions. In Missouri, 54 percent of the driver and occupant fatalities involving a commercial motor vehicle driver were unrestrained.

Crash Type	Fatalities		
	2012	2013	2014
Unrestrained Drivers & Occupants	44	38	46
*Aggressive Driver Involved	15	24	14
Older Driver (Age 65 & Over) Involved	14	8	7
Pedestrians	10	8	6
Distracted/Inattentive Driver Involved	8	9	6
Motorcyclists	9	2	9
Young Driver (Age 15-20) Involved	6	6	4
Substance-Impaired Driver Involved	5	2	2
Unlicensed/Improperly Licensed Driver Involved	3	2	2

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/ change.

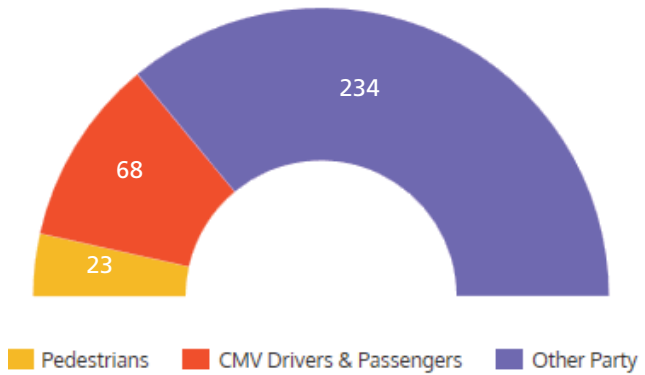


## KEY STRATEGIES

### EDUCATION

- Educate:
  - roadway users, motor carriers and the agricultural community on CMV performance, visibility and regulations
  - law enforcement, EMS and tow truck operators on quick clearance practices/Traffic Incident Management (TIM)
  - trucking companies on the need to enforce and implement safety belt policies for their employees
- Encourage:
  - Department of Revenue to prepare and post videos for CMV drivers in preparation of license application and renewals
  - CMV employers to educate drivers on benefits of health and fatigue management
- Incorporate "Share the Road" slogan in press releases and promotional events
- Increase the use of dynamic message signs to promote CMV safety messages to motorists
- Expand CMV educational programs and events to include those such as:
  - No-Zone
  - National Truck Driver Appreciation Week
  - Road Check
  - Brake Safety Week
  - Operation Safe Driver
  - MoDOT's Commercial Vehicle Awareness Week, yearly in April
  - Teens and Trucks (CVSA sponsored program)
  - Distracted Driving
- Develop awareness program to increase use of safety belts among CMV drivers
- Explore development of a State Road Team to educate roadway users on how to safely share the road with large trucks
- Implement a comprehensive mechanic inspection procedure outreach program
- Incorporate into driver education program presentations on how to safely operate around and share the road with CMVs

Total Killed in CMV Crashes  
2012-2014



### EMERGENCY RESPONSE

- Enhance TIM training for local responders (approaching and safely handling a CMV crash)
- Improve emergency response time through multidisciplinary training, better planning and enhanced communication
- Educate:
  - CMV drivers on expectations of emergency response personnel after a crash
  - first responders about hazardous materials when responding and working a CMV crash

### ENFORCEMENT

- Participate in Operation Safe Driver, Brake Safety Week and Road Check Programs
- Expand enforcement on rural and urban high-incident corridors (as identified in the Commercial Vehicle Safety Plan (CVSP))
- Maintain:
  - the commercial motor vehicle and motor coach inspection program with the Motor Carrier Safety Assistance Program partners
  - the new entrant audit program
- Continue enforcement efforts at fixed scale locations on high-incident corridor routes
- Provide training to law enforcement officers on stop-and-approach techniques for CMV
- Enforce appropriate CMV laws, (e.g., primary safety belt usage, hands-free mobile device use, etc.)

### ENGINEERING

- Initiate appropriate engineering interventions on high-incident corridors (e.g., height activated flashing beacons, speed activated, etc.)



## TECHNOLOGY

- Explore “leveraging dollars for technology” by:
  - approaching large carriers to champion the use of vehicle technologies
- Explore expanding virtual inspection and other technology enforcement opportunities
- Use:
  - Kansas City Scout, St. Louis Gateway Guide, and Transportation Management Center of the Ozarks incident notification systems to alert drivers further upstream of incidents
  - e-Updates to notify CMV drivers of roadway issues
- Deploy use of parking space counters/systems to better inform CMV operators of parking availability at rest areas including other truck parking projects per Jason’s Law
- Continue to encourage usage of crash avoidance technologies through carriers

- Consider installing video boards at truck stops and/or rest areas to help convey current roadway conditions to drivers

## PUBLIC POLICY/OTHER

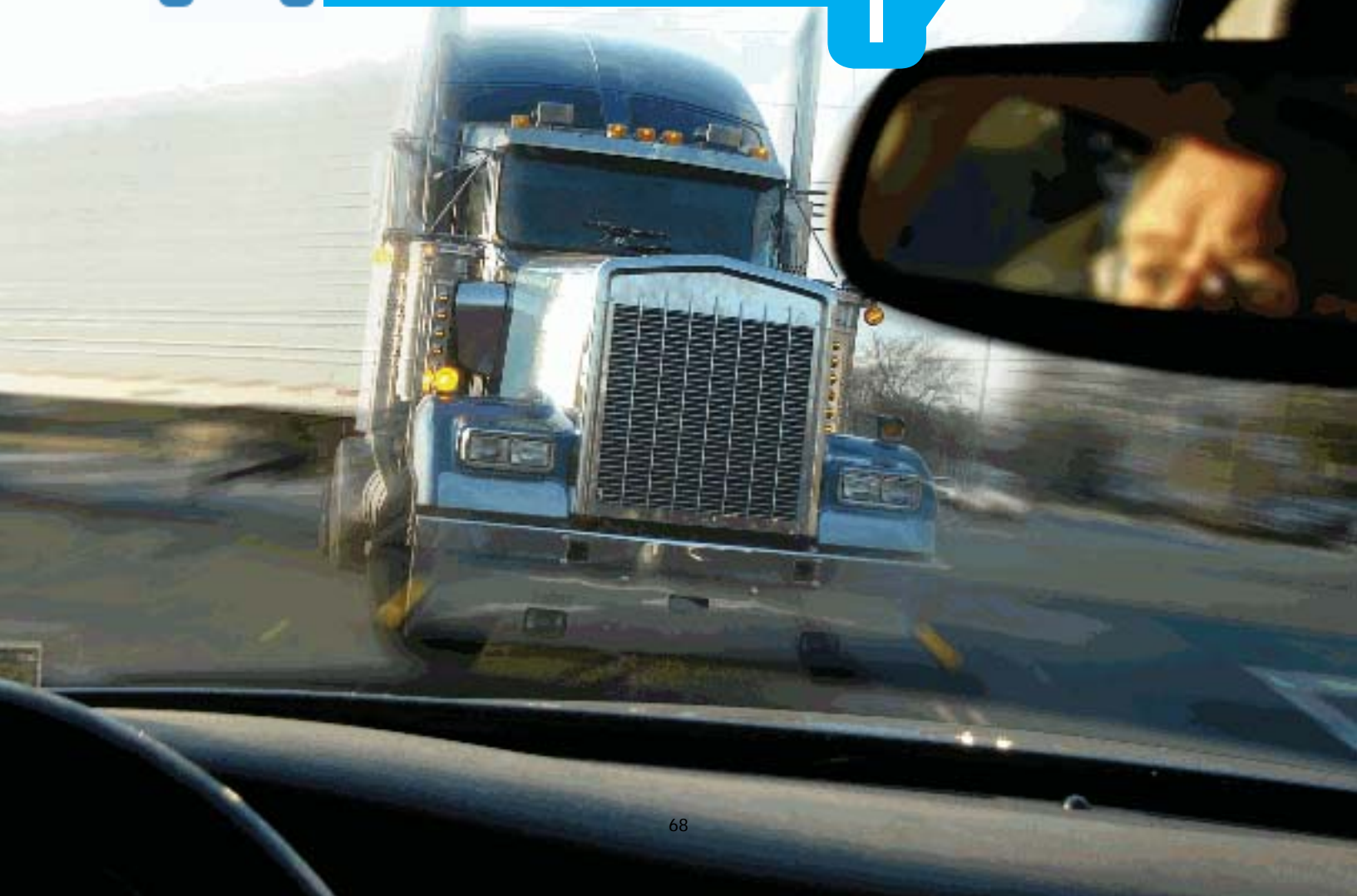
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving
- Enact a primary safety belt law that includes all seating positions

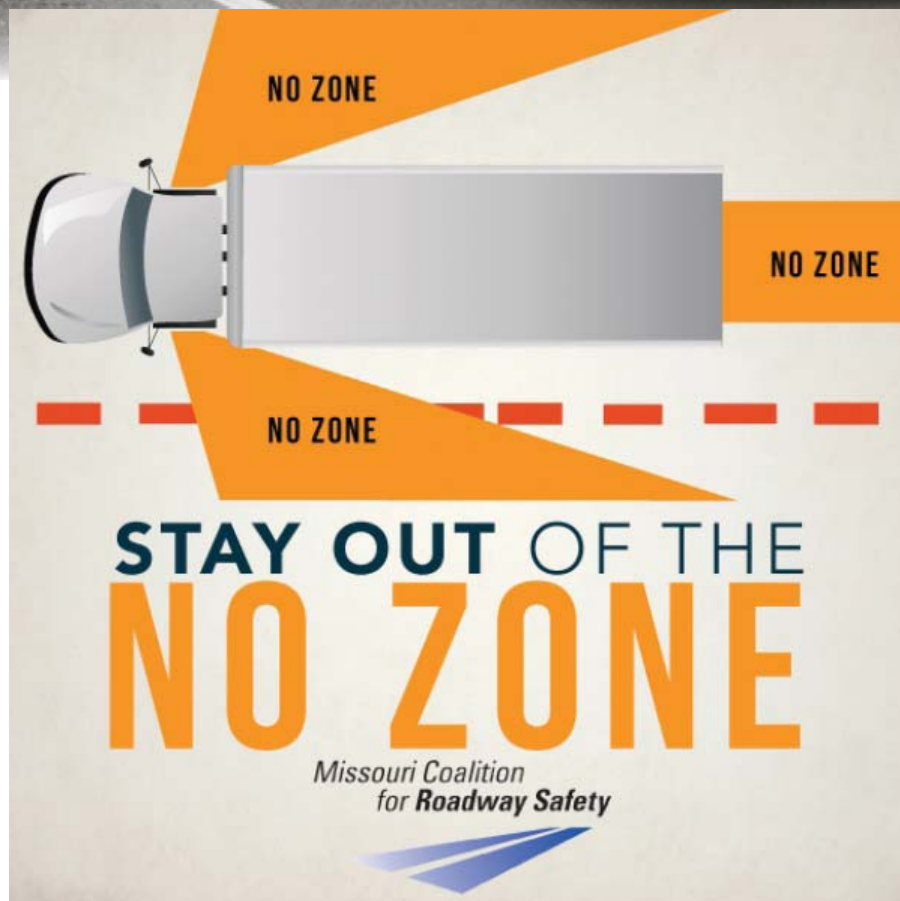
## PERFORMANCE MEASURES

- Number of fatalities and serious injuries involving a commercial motor vehicle
- Percent of unrestrained commercial motor vehicle driver fatalities and serious injuries
- Number of CMV drivers’ contribution to fatal and serious injury crashes



56 CMV drivers were killed in crashes between 2012-2014 -  
51% were UNRESTRAINED!





## ALL-TERRAIN VEHICLE (ATV)/ UTILITY TERRAIN VEHICLE (UTV)

### THE CHALLENGE

The Consumer Product Safety Commission estimates that ATVs result in more than 100,000 emergency department visits annually, including more than 30,000 injuries for children under 16 years. In spite of the fact that driving ATVs/UTVs on roadways in Missouri is mostly prohibited except for agricultural and industrial purposes, all 46 people killed involving an ATV/UTV in traffic-related crashes from 2012 through 2014 were the ATV/UTV riders.



	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
ATV/UTV Involved	8	21	17	46	97	70	72	239

The table below depicts ATV/UTV involved fatalities by roadway designation. Between 2012 and 2014, 61 percent of these fatalities occurred on county roads.

Designation	Fatalities			
	2012	2013	2014	Total
County Road	6	14	8	28
Missouri Lettered	2	5	1	8
U.S. Route	0	1	3	4
City Street	0	0	4	4
Missouri Numbered	0	1	1	2
Total	8	21	17	46

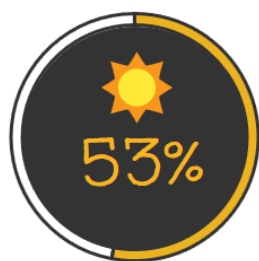
\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts ATV/UTV involved fatalities in addition to meeting one or more of the below conditions. During the last three years in Missouri, all of the ATV/UTV involved fatalities were the ATV/UTV riders. In Missouri, 59 percent of the ATV/UTV involved fatalities involved a substance-impaired ATV/UTV driver and 57 percent involved an aggressive ATV/UTV driver.

Crash Type	Fatalities		
	2012	2013	2014
Substance-Impaired Driver Involved	7	12	8
*Aggressive Driver Involved	6	14	6
Young Driver (Age 15-20) Involved	0	4	1
Older Driver (Age 65 & Over) Involved	0	1	3
Distracted/Inattentive Driver Involved	1	2	1

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



of ATV/UTV  
involved fatalities took  
place during the  
**DAY**



## KEY STRATEGIES

### EDUCATION

- Educate ATV/UTV operators and riders about the:
  - importance of wearing protective gear - especially helmets and safety belt usage when operating UTVs
  - dangers of substance-impaired driving/riding
- Increase the awareness and availability of hands-on ATV/UTV safety training courses
- Partner with the agriculture community (e.g., Farm Bureau, FFA, 4H, University of Missouri Extension, etc.) to share safety tips about operating ATVs/UTVs in rural areas and on rural roads
- Conduct public information and education programs on the laws and requirements specific to ATV/UTV operation and on the dangers of carrying passengers upon these vehicles

### ENFORCEMENT

- Increase enforcement of Missouri laws pertaining to ATVs/UTVs especially:
  - those pertaining to operation of ATVs/UTVs on streets and highways
  - having a valid license
  - operating the vehicle while substance-impaired
  - passenger restrictions
  - usage of safety devices

### PUBLIC POLICY/OTHER

- Invite Farm Bureau and/or Department of Agriculture to participate in the Missouri Coalition for Roadway Safety (MCRS)
- Work with state legislators to include clarifying language for use of UTVs on roadways to address definitions of ATV, UTV/recreational off-highway vehicle (ROV)
- Consider updating Missouri Uniform Crash Report to clearly distinguish UTVs

### PERFORMANCE MEASURES

- Number of fatalities and serious injuries involving an ATV/UTV
- Number of ATV/UTV rider traffic-related fatalities and serious injuries

## BETWEEN 2012-2014...



**95%** of the ATV/UTV rider fatalities were UNHELMETED

**80%** of the ATV/UTV fatal crashes were SINGLE VEHICLE

**78%** of the ATV/UTV rider fatalities were MALE

**63%** of the ATV/UTV rider fatalities were between the AGE OF 21-45



**THINK. RIDE. LIVE.**





## SCHOOL BUS



### THE CHALLENGE

According to the U.S. Department of Transportation, school buses are the safest mode of transportation for getting children back and forth to school. They are designed to be safer than passenger vehicles. However, there are still school bus related fatalities and serious injuries

that occur. From 2012 through 2014, there were 10 fatalities and 48 serious injuries involving school buses. Of those 58 fatalities and serious injuries, 20 were occupants of school buses; and 38 were drivers and occupants of other vehicles.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
School Bus Involved	3	3	4	10	15	19	14	48

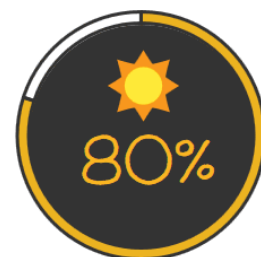
The table below depicts school bus involved fatalities by road-way designation. Between 2012 and 2014, 50 percent of these fatalities occurred on Missouri lettered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Lettered	2	0	3	5
U.S. Route	0	2	0	2
City Street	1	0	0	1
Missouri Numbered	0	1	0	1
*Other	0	0	1	1
Total	3	3	4	10

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts school bus involved fatalities in addition to meeting one or more of the below conditions. In Missouri from 2012-2014, 40 percent of the fatalities involving a school bus were motorcyclists.

Crash Type	FATALITIES		
	2012	2013	2014
Motorcyclists	2	0	2
Unrestrained Drivers & Occupants	1	0	1



of school bus  
involved fatalities took  
place during the  
**DAY**



## KEY STRATEGIES

### EDUCATION

- Educate:
  - roadway users about school bus laws and regulations through use of media and social media
  - students, parents, and school bus drivers on the proper use of safety equipment and safety procedures
  - school bus drivers and riders about school bus safety in and around the school bus
  - school bus drivers, bus contractors and school districts on the importance of selecting safe pick-up and drop-off locations for passengers
  - students and parents about school bus safety before the school year begins and routinely throughout the year
  - local entities about proper signing and speed limits for school zones
- Educate school districts:
  - on rules and regulations for school bus operation
  - on proper use of child passenger safety on school buses
- Encourage Department of Elementary and Secondary Education (DESE), Missouri State Highway Patrol (MSHP) and MoDOT Traffic and Highway Safety Office to continue working with school districts regarding driver and bus safety
- Ensure the school bus driver training program curriculum is current

### ENFORCEMENT

- Enforce stop arm and signal violations (e.g., Officer-On-The-Bus program, etc.)

- Encourage school districts to work with local law enforcement on observed violations of stop/signal arm violations

### ENGINEERING

- Install and maintain proper speed limits and high-visibility signing for all school zones
- Work with bus drivers, bus contractors and school districts to select stops with proper sight distance and consolidate bus stops when/where possible
- Explore building areas/opportunities for school buses to pull off the traveled portion of a roadway to safely load and unload students in safe zones

### TECHNOLOGY

- Deploy:
  - automated enforcement on buses to capture stop-arm violations (e.g., cameras, etc.)
  - cameras to enable school bus drivers to see blind spots during pick-ups and drop-offs

### PUBLIC POLICY/OTHER

- Continue to have MCRS members serving on School Bus Task Force
- Encourage school districts to purchase buses with passenger restraint systems
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving

### PERFORMANCE MEASURES

- Number of fatalities or serious injuries involving a school bus
- Number of school aged students killed or seriously injured due to crashes involving school buses
- Number of actual school bus driver and occupant fatalities/injuries versus external/pedestrian fatalities/injuries



# EMPHASIS AREA IV

## VULNERABLE ROADWAY USERS



The term Vulnerable Roadway Users includes individuals who are at high risk for death or serious injury when involved in a motor-vehicle-related crash. Vulnerable roadway users include:

- Older Driver (Age 65 & Over)
- Motorcyclists
- Pedestrians
- Bicyclists





The table below illustrates a three-year total for fatalities and serious injuries resulting from crashes involving these vulnerable roadway users.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Older Driver (Age 65 & Over) Involved	142	151	166	459	768	707	736	2,211
Motorcycle Involved	104	73	88	265	701	567	555	1,823
Pedestrians	86	75	69	230	229	276	252	757
Bicyclists	6	4	4	14	73	66	51	190



## OLDER DRIVER (AGE 65 & OLDER)

### THE CHALLENGE

Continuing to drive safely and enjoying alternative transportation means enhanced mobility and independence for older adults in Missouri. These factors heavily influence the quality of life for older adults and their friends and families.

Statewide data reveals that the number of Missourians age 65 or over is projected to grow exponentially during the next 13 years, bringing the total number of older adults to an estimated 1.4 million (source: Missouri Office of Administration). This represents an 87 percent increase in older adults since the year 2000. This is not surprising given that across the nation 10,000 people will turn 65 every day through 2030. Statewide, adults 65 and over will make up more than 21 percent of the population by 2030. Many Missouri counties can expect 1 in 4 of their residents to be 65 or over at that time.

Missourians are living longer and desire to remain active in the community, which means there is a need to maintain



independence and mobility; however, medical conditions that may impair driving ability become more likely in older age. Whether older adults have the capacity to meet their transportation needs is often measured by how many hold a valid driver license. In 2015, 813,730 people age 65 or older held a Missouri driver license. They accounted for 19 percent of the 4,224,657 persons licensed in the state (source: Missouri Department of Revenue).

Additionally, as people age, fitness-to-drive (the ability to drive safely) can be compromised by changes in vision, movement, thinking and memory, or even use of certain medications. These risks increase in advanced older age as does the risk of injury when a crash does occur. Our society is highly mobile. In some areas of the state, driving may be one of the few means of transportation, and the car remains important to many older Missourians. Although cars today are safer, new technology takes time to be incorporated into the overall vehicle fleet.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Older Driver Involved (Age 65 & Over)	142	151	166	459	768	707	736	2,211

The table below depicts older driver involved fatalities by roadway designation. Between 2012 and 2014, 30 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	37	47	52	136
U.S. Route	39	31	32	102
Missouri Lettered	19	16	33	68
City Street	18	28	13	59
Interstate	16	12	17	45
County Road	10	12	14	36
*Other	3	5	5	13
Total	142	151	166	459

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts older driver involved fatalities in addition to meeting one or more of the below conditions. In Missouri, 42 percent of the drivers and occupants killed involving an older driver was unrestrained. When analyzing only the older drivers themselves, 42 percent of them were unrestrained.

Crash Type	Fatalities		
	2012	2013	2014
Unrestrained Drivers & Occupants	50	39	60
*Aggressive Driver Involved	38	30	42
Commercial Motor Vehicle Driver Involved	14	8	7
Distracted/Inattentive Driver Involved	8	8	10
Motorcycle Driver Involved	6	5	8
Substance-Impaired Driver Involved	8	2	9
Pedestrians	6	7	4
Unlicensed/Improperly Licensed Driver Involved	1	4	4

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.

## KEY STRATEGIES

### EDUCATION

- Educate older drivers:
  - on properly wearing their safety belt
  - on the use of safety belts - every trip, everyone, EVERY TIME, day and night
  - and their family and friends about driving risks associated with certain medications and medical conditions
  - on engineering designs, (e.g., roundabouts, J-turns, advances in technology, etc.)
  - on ways to improve their safety in a vehicle (e.g., selecting safe trip routes, improving function through exercise, driver training technology, etc.)
  - and their family members on safe driving habits and practices, including how to select a car with advanced safety features
  - community organizations and families on the benefits and availability of alternative transportation
- Educate:
  - all drivers and passengers on the importance of understanding and accepting full responsibility for their safety, and the safety of others, while driving/riding unrestrained
  - consumers on the importance of crashworthiness and crash avoidance technology
- Develop and promote:
  - fitness-to-drive screening and assessment tools relevant to professionals, older drivers, and community members
  - tools that prolong safe driving
- Promote:
  - the availability of alternative transportation options, including how to find and use these alternatives
  - driver evaluation and rehabilitation as an area of practice
- Educate stakeholders (e.g., law enforcement, driver license offices, healthcare professionals, etc.) about medical fitness-to-drive and prolonging safe driving by:
  - promoting the value and importance of use of state reporting forms by family, medical professionals and law enforcement
- Facilitate public education campaigns that create awareness of older driver safety and the benefits and availability of alternative transportation resources
- Enhance the discussion of driving retirement and transportation alternatives after giving up the keys
- Encourage older drivers to participate in safe driving

courses (e.g., AARP Driver Safety Course, etc.)

- Use media to educate drivers on the potential outcomes of being unrestrained in a vehicle during a crash
- Provide educational emphasis to older drivers through publications/organizations (e.g., AARP, AAA, AOTA, etc.)

### ENFORCEMENT

- Promote the importance of citing and warning older drivers for driving violations
- Promote the use of short intervention assessment tools to determine fitness-to-drive
- Enhance training of law enforcement on identifying potential medical impairments
- Enhance the process of reporting potentially medically-impaired drivers

### ENGINEERING

- Implement, as appropriate, the treatments identified in the *Handbook for Designing Roadways for the Aging Population* published by the Federal Highway Administration
- Expand and maintain roadway visibility features, such as increased miles of stripes on edgeline/centerline
- Utilize context-sensitive solutions that promote safety for all roadway users
- Implement wrong-way driving countermeasures
- Create educational material for new roadway infrastructure
- Upgrade intersection designs, (e.g., turn lanes, etc.)
- Promote installation of engineered roadway safety features (e.g., highly retro-reflective signs and markings, high friction surface treatments, etc.)

### TECHNOLOGY

- Recognize and promote importance of new in-vehicle technologies in reducing crashes and injuries (e.g., blind spot warning, adaptive headlights, lane departure warning, etc.)
- Engage diverse stakeholders, including dealerships and manufacturers, in promoting new technologies
- Develop communication strategies that make understanding the benefits of new technologies easier
- Promote technologies that improve community mobility (e.g., phone apps, car-sharing services, autonomous vehicles, etc.) and recognize that streets should accommodate all road users
- Encourage use and understanding of safety features such as automatic emergency braking, lane monitoring, driver alertness monitors and autonomous vehicles

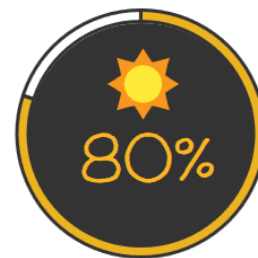
## PUBLIC POLICY/OTHER

- Develop and evaluate evidence-based fitness-to-drive assessment tools for use by licensing officials, physicians, family members and other professionals
- Educate communities and legislators on the importance of providing more extensive and convenient public transportation in rural areas
- Continue:
  - working with the Subcommittee on Elder Mobility and Safety under the Missouri Coalition for Roadway Safety and other relevant subcommittees to address older driver needs and issues, such as increasing awareness of driver's physical mobility limits as they age
  - research to develop new screen tools for older driver evaluation
- Promote:
  - the importance of mobility management professionals in key communities across the state
  - public policies that increase opportunities to use advanced technology

- Encourage:
  - planning stakeholders to include input from advocacy groups
  - and support opportunities to advance safety and driving tools that allow people to drive safely for longer
- Enact a primary safety belt law that includes all seating positions

## PERFORMANCE MEASURES

- Number of fatalities and serious injuries involving an older driver
- Number of older driver and occupant fatalities and serious injuries
- Rate of fatalities and serious injuries per capita for drivers and pedestrians 65 years age and older

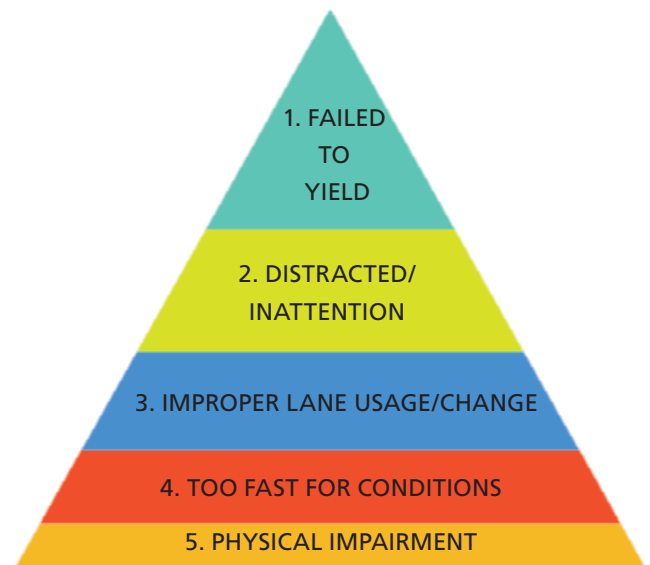


of older driver  
involved fatalities took  
place during the  
**DAY**

**68%** of older  
driver  
fatalities take place  
between...

**9 AM**  
**6 PM**

TOP 5 CONTRIBUTING CIRCUMSTANCES FOR  
OLDER DRIVERS' IN FATAL & SERIOUS INJURY CRASHES  
2012-2014





## OLDER DRIVERS INVOLVED IN FATAL CRASHES BY AGE 2012-2014



AGE 65-74

241



AGE 75-84

155



AGE 85 & >

47

**43%**  
**OF OLDER DRIVER**  
**INVOLVED FATAL**  
**CRASHES**  
**TOOK PLACE AT AN**  
**INTERSECTION**



## MOTORCYCLE

### THE CHALLENGE

A motorcycle is inherently more difficult to operate than a passenger vehicle, requiring more physical skill and offering riders almost no protection in a crash. Between 2012 and 2014 in Missouri, motorcycle operators were involved in 265 fatalities, of those 265, 261 were the motorcycle drivers and/or riders. During the last three years, motorcycles represented 2 percent of the registered vehicles



in Missouri but were involved in 12 percent of all fatal traffic crashes. An area of particular concern is the number of unlicensed and improperly licensed motorcycle operators involved in crashes. Between 2012 and 2014, 38 percent of the motorcycle involved fatalities involved an unlicensed or improperly licensed motorcycle operator.

	Fatalities					Serious Injuries			
	2012	2013	2014	Total		2012	2013	2014	Total
Motorcycle Involved	104	73	88	265		701	567	555	1,823

The table below depicts motorcycle involved fatalities by road-way designation. Between 2012 and 2014, 27 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	27	21	23	71
Missouri Lettered	21	12	23	56
City Street	24	16	12	52
U.S. Route	12	7	9	28
County Road	8	8	10	26
Interstate	5	6	8	19
*Other	7	3	3	13
Total	104	73	88	265

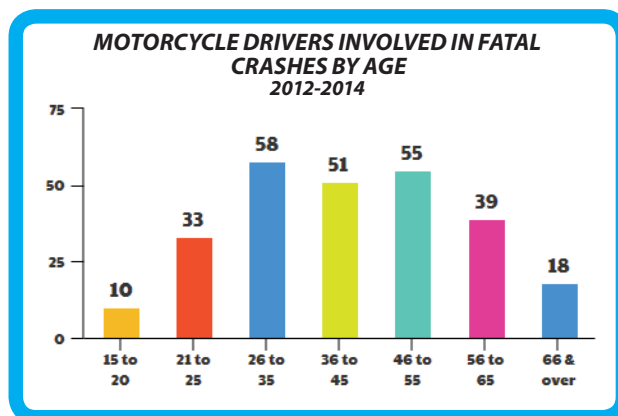
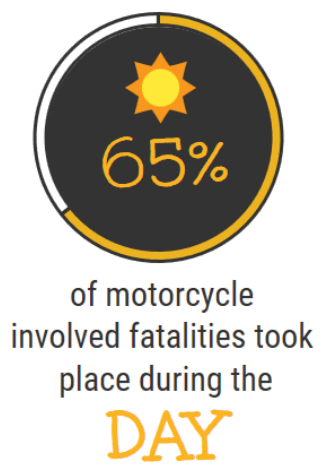
\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts motorcycle involved fatalities in addition to meeting one or more of the below conditions. In Missouri from 2012-2014, 56 percent of these fatalities involved an aggressive motorcycle operator.

Crash Type	FATALITIES		
	2012	2013	2014
*Aggressive Driver Involved	64	40	44
Unlicensed/Improperly Licensed Driver Involved	46	23	32
Substance-Impaired Driver Involved	24	16	21
Older Driver (Age 65 & Over) Involved	6	5	8
Distracted/Inattentive Driver Involved	6	4	4
Young Driver (Age 15-20) Involved	5	1	4
Pedestrians	1	0	0

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



## KEY STRATEGIES

### EDUCATION

- Educate all riders:
  - on the importance of accepting full responsibility for their own safety while riding
  - on the importance of high-visibility personal protective equipment, DOT compliant helmets and encourage their use when riding
- Educate:
  - general public on the importance of not removing motorcycle riders' helmets if they are the first on the crash scene due to risks to the motorcyclist
  - law enforcement officers on the identification of non-compliant DOT approved helmets and the importance of enforcing Missouri's all-rider helmet law
- Encourage all:
  - motorcycle operators to become properly licensed through education and awareness programs
  - motorcyclists to ride impairment free and distraction free, through education and awareness programs
  - motorcycle dealers to promote safe cycling and rules that pertain to customers (e.g., rider education programs, being properly licensed, use of DOT compliant helmets, etc.)
- Ensure adequate availability and access to motorcycle safety training throughout the state
- Expand programs to educate other roadway users on issues relating to motorcycle operation, visibility and vulnerability

### EMERGENCY RESPONSE

- Identify opportunities to utilize the *EMS Agenda for the Future* to promote motorcycle safety
- Encourage the EMS profession to explore new techniques and technologies to help educate motorcyclists on issues such as rider responsibility and the benefits of wearing full, high-visibility protective equipment
- Provide in-service training to EMS personnel on crash scene management specific to motorcycle crashes

### ENFORCEMENT

- Aggressively enforce Missouri's all-rider helmet law including issuing citations for non-compliant DOT approved helmets

- Enforce:
  - speeding and substance-impaired riding laws
  - Missouri's motorcycle license and endorsement laws
- Conduct aggressive enforcement on identified high-risk motorcycle crash corridors and roadways

### ENGINEERING

- Consider:
  - the needs of motorcyclists during policy, planning and road maintenance efforts (e.g., placement of raised and low-traction roadway markings, shoulder type and width, work zones, roadside hardware barriers, etc.)
  - paving a small portion (50 ft.) of an intersecting unpaved roadway approach where sand, gravel or mud is repeatedly brought onto the roadway
  - paved shoulders in the design of new or reconstructed roadways and review existing roadways where a full paved shoulder is not provided and consider adding a paved shoulder
- Establish a routine inspection and maintenance plan to reduce the amount of roadway debris, such as sand, gravel and vehicle spills, also targeting curves and locations with limited maneuvering space
- Identify motorcycle high-incident corridors and conduct road safety assessments
- Plan and implement motorcycle-friendly work zones and sign appropriately for unexpected roadway situations such as uneven surfaces, grooves, milling and/or low shoulders

### TECHNOLOGY

- Integrate motorcycles and motorcyclists into the transportation population of new Intelligent Transportation Systems (ITS) development
- Consider a motorcycle Vehicle-Miles-Traveled (VMT) study possibly utilizing vehicle inspection data to more accurately measure motorcycle VMT in Missouri





## PUBLIC POLICY/OTHER

- Maintain Missouri's all-rider helmet law
- Increase the penalty for failure to wear a DOT compliant approved motorcycle helmet
- Revise the:
  - motorcycle operator learner's permit to be valid for a maximum of 90 days with a maximum of one renewal
  - definition of a motorcycle to include all motorized bicycles (i.e., scooters), requiring their proper registration, licensing, helmet use and high visibility clothing
  - definition of a motortricycle to better distinguish between these and other newly designed 3-wheeled vehicles (i.e., autocycles). Include distinguishing characteristics of motortricycles; 1) handlebars for steering and 2) a seat designed to be straddled or sit astride

- Ensure that all knowledge tests (e.g., licensing, training, etc.) are validated and consistent, based on Missouri crash data and reviewed every two to three years

## PERFORMANCE MEASURES

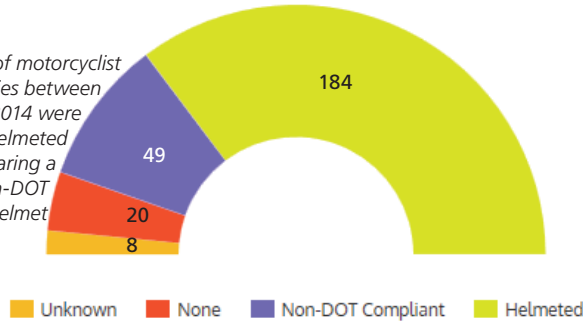
- Number of fatalities and serious injuries involving a motorcycle
- Number of motorcycle rider fatalities and serious injuries
- Number of unhelmeted motorcycle rider fatalities and serious injuries
- Number of fatalities and serious injuries involving an improperly/unlicensed motorcycle operator
- Number of motorcyclist fatalities and serious injuries in which riders are wearing non-compliant DOT approved helmets

**42%**  
**of**  
**fatal**  
**motorcycle**  
**crashes**  
**were**  
**SINGLE**  
**VEHICLE**  
**crashes**



## MOTORCYCLIST FATALITIES

27% of motorcyclist fatalities between 2012-2014 were either unhelmeted or wearing a non-DOT compliant helmet



Top contributing circumstances for MOTORCYCLE DRIVERS involved in serious crashes:

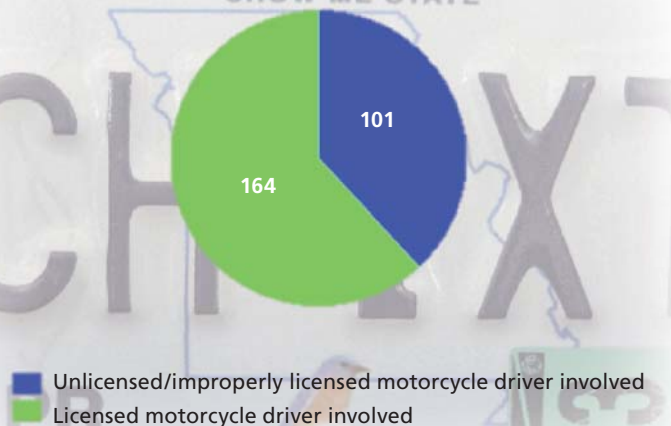
1. Too fast for conditions
2. Improper lane usage/change
3. Substance-impaired
4. Speed exceeded limit
5. Distraction/inattention



Top contributing circumstances for OTHER drivers involved in serious motorcycle involved crashes:

1. Failed to yield
2. Distraction/inattention
3. Improper turn
4. Following too close
5. Violation signal/sign

## MOTORCYCLE INVOLVED FATALITIES



## PEDESTRIANS

### THE CHALLENGE

Walking is an essential transportation mode for many Missourians. For transit or motor vehicle users, every trip begins and ends as a pedestrian. Public health, economic, and environmental factors are elevating the importance of this mode. Many Missourians do not have access to a personal vehicle, are not physically capable of driving, simply decide not to drive, or delay licensure. Across Missouri, communities are responding with changes to land-use development practices and complete streets policies. Many of the urban areas like St. Louis, Kansas City, Springfield and Columbia have robust pedestrian networks.

Motor vehicle crashes involving pedestrians do not occur in extremely large numbers, but when a pedestrian is involved in a traffic crash, the potential for injury or death is much greater. From 2012 through 2014, pedestrian involved crashes comprised less than 1 percent of all crashes, but accounted for 10 percent of all fatalities and 5 percent of all serious injuries in Missouri.

Pedestrian age and vehicle speed are the two most significant factors determining the outcome of a crash. This is especially true for children and older pedestrians. Research shows that pedestrians hit by a vehicle traveling 20 mph have a 5 percent chance of death, whereas those struck at 40 mph have an 85 percent chance of death.

Pedestrian trips are a larger percentage of all trips in the urbanized areas of the state. Of the 2012-2014 Missouri pedestrian fatalities, 76 percent occurred in urban areas and 24 percent occurred in rural areas. The Vision Zero approach to traffic safety, which began in Sweden and has now been adopted by many states and cities, views traffic deaths and serious injuries as preventable not inevitable.

When evaluating pedestrian crashes in Missouri, it is important to know how a pedestrian is defined. The general perception of a pedestrian is an individual who has chosen walking as their preferred mode of transportation. For the purposes of traffic safety, the definition is more broad and includes anyone on foot or using a wheelchair. For example, a person who intentionally exits a vehicle and then is struck by another vehicle is considered a pedestrian.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Pedestrians	86	75	69	230	229	276	252	757

The table below depicts pedestrian fatalities by roadway designation. Between 2012 and 2014, 24 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	19	23	14	56
Interstate	21	15	16	52
City Street	17	17	16	50
U.S. Route	10	11	12	33
Missouri Lettered	6	2	6	14
*Other	6	4	3	13
County Road	7	3	2	12
Total	86	75	69	230

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts pedestrian fatalities in addition to meeting one or more of the below conditions. In Missouri, 10 percent of the pedestrian fatalities involved a commercial motor vehicle.

Crash Type	Fatalities		
	2012	2013	2014
Commercial Motor Vehicle Driver Involved	10	8	6
Young Driver (Age 15-20) Involved	13	5	5
*Aggressive Driver Involved	8	6	3
Older Driver (Age 65 & Over) Involved	6	7	4
Unlicensed/Improperly Licensed Driver Involved	5	8	4
Distracted/Inattentive Driver Involved	11	4	2
Substance-Impaired Driver Involved	4	2	3
Motorcycle Driver Involved	1	0	0

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.

## KEY STRATEGIES

### EDUCATION

- Educate the public about the dangers of:
  - exiting and walking around a disabled vehicle or vehicles involved in an incident
  - distracted pedestrians (e.g., texting, talking, listening to music, etc.)
- Educate pedestrians on the importance of:
  - being visible to motorists (e.g., establish eye contact with drivers, etc.)
  - utilizing crosswalks and obeying crosswalk signals
- Develop:
  - targeted pedestrian-safety-education programs for high-risk groups (e.g., older adults, parents of toddlers, etc.)
  - and promote school and healthcare programs that address pedestrian safety
- Emphasize the importance of a public-safety-education program that educates drivers and pedestrians on how to safely share the road
- Increase visibility by wearing light-colored, fluorescent, and/or reflective clothing
- Improve awareness of pedestrians among all roadway users

### ENFORCEMENT

- Increase enforcement of traffic laws to prevent pedestrian injuries and deaths (e.g., failure to use crosswalks, jaywalking, failure of drivers to yield, etc.)
- Recommend targeted speed enforcement in appropriate locations

### ENGINEERING

- Utilize best practices for Complete Streets design from AASHTO and NACTO sources
- Promote systemic design solutions that reduce conflict points, minimize exposure at roadway crossings, separate modes, and reduce speed when practical
- Provide sidewalks and walkways separate from motor vehicle traffic
- Design with pedestrian in mind to reduce conflict points and improve safety at crossings
- Enhance intersection and roadway design to be more pedestrian friendly including refuge islands and traffic calming designs

- Continue to fund and implement the Safe Routes to School program through the Transportation Alternatives
- Consider installing vehicle pull-off areas along roadways to accommodate disabled vehicles
- Improve:
  - lighting in selected urban locations
  - pedestrian signalization (e.g., countdown pedestrian signals, advanced walk phase, all-scramble walk phase, etc.)
- Install/improve pedestrian signs, road markings, and devices (e.g., fluorescent and yellow green signs, rectangular rapid flashing beacons, in-roadway lights at crosswalks, etc.)
- Upgrade sidewalks and curb ramps to ADA standards
- Install:
  - crosswalk signs and pavement markings at all schools
  - pedestrian mid-block crossing signals
- Use pedestrian hybrid beacon - formerly known as HAWK (High Intensity Activated CrossWalk Beacons) on non-signalized major roads, stop sign controlled minor roads and mid-block pedestrian crossings

### TECHNOLOGY

- Use passive detection devices to extend or shorten the duration of pedestrian signal timing as needed to account for slower moving pedestrians
- Expand automated enforcement in school zones
- To identify problem areas, use emerging technologies to count pedestrian traffic at intersections or along roadways as well as identifying driver and pedestrian behavior
- Install pedestrian detection sensors to communicate with approaching vehicles

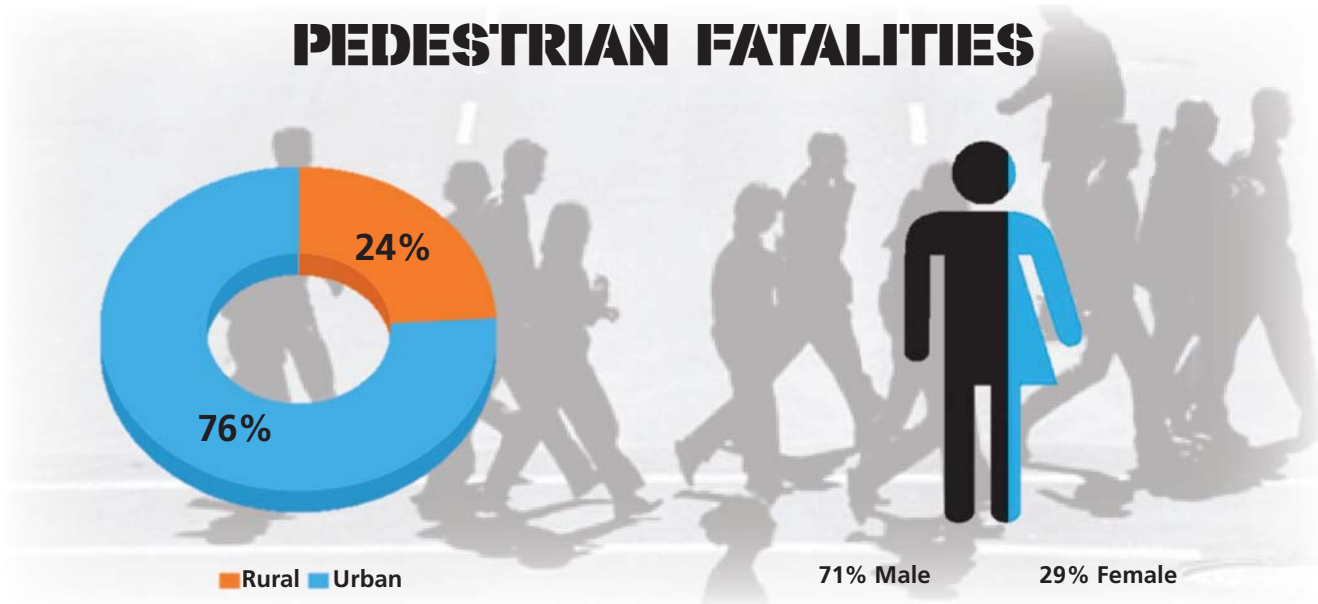
### PUBLIC POLICY/OTHER

- Support Complete Streets Policy and Implementation and Livable Communities Initiative
- Encourage municipalities to become a pedestrian-friendly community
- Promote anti-harassment laws for pedestrians
- Consider expansion of Move Over Law to include stranded motorist or other vulnerable roadway users
- Create clear definitions of electric bicycle/tricycle and licensing requirements
- Develop and implement pedestrian safety action plans for cities

### PERFORMANCE MEASURES

- Number of pedestrian fatalities and serious injuries





**77%** of pedestrian fatalities occurred

**AT A LOCATION OTHER THAN AT A SIGNAL OR  
WITHIN A CROSSWALK**



of pedestrian  
fatalities  
took place at  
**NIGHT**

### TOP 3 CONTRIBUTING CIRCUMSTANCES FOR PEDESTRIANS KILLED IN FATAL & SERIOUS INJURY CRASHES

2012-2014

- 
1. FAILED TO YIELD
  2. SUBSTANCE-IMPAIRED
  3. DISTRACTED/INATTENTIVE



## BICYCLISTS

### THE CHALLENGE

Bicycling is an essential transportation mode for many Missourians. Public health, economic, and environmental factors are elevating the importance of this mode. Across Missouri, communities are responding with changes to land-use development practice and complete streets policies. Many of the urban areas like St. Louis, Kansas City, Springfield and Columbia have robust bicycling networks.

While bicycling is a safe and healthy mode of travel, potential



crashes with motorized vehicles make these road users vulnerable to serious injury or death if struck. Between 2012 and 2014, cyclists made up .06 percent (14 of 2,349) of the total statewide fatalities.

Between 2012 and 2014, Missouri bicycle fatalities were all male cyclists. The Vision Zero movement in some cities has led to grassroots change in how roadway deaths are viewed – crashes involving pedestrians and bicyclists are preventable.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Bicyclists	6	4	4	14	73	66	51	190

The table below depicts bicycle rider fatalities by roadway designation. Between 2012 and 2014, 43 percent of these fatalities occurred on city streets.

Designation	Fatalities			
	2012	2013	2014	Total
City Street	2	3	1	6
Missouri Numbered	1	0	1	2
U.S. Route	1	0	1	2
*Other	1	0	1	2
Missouri Lettered	1	0	0	1
Interstate	0	1	0	1
Total	6	5	4	15

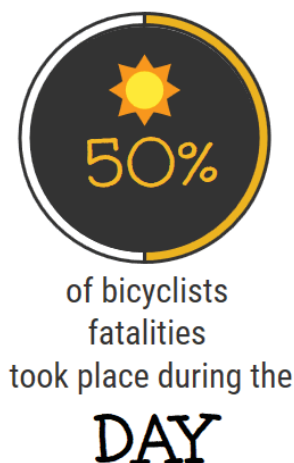
\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts bicycle rider fatalities in addition to meeting one or more of the below conditions. In Missouri, 21 percent of the bicycle rider fatalities involved a commercial motor vehicle.

Crash Type	Fatalities		
	2012	2013	2014
Commercial Motor Vehicle Driver Involved	2	1	0
*Aggressive Driver Involved	0	1	1
Substance-Impaired Driver Involved	2	0	0
Distracted/Inattentive Driver Involved	1	0	0

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



## KEY STRATEGIES

### EDUCATION

- Improve public awareness to promote safe behavior by all roadway users relative to bicycle traffic
- Emphasize the importance of a public safety education program that educates drivers and bicyclists on how to safely share the road
- Educate bicyclists:
  - about the dangers of distraction while riding
  - about the value of wearing personal protective gear, especially bicycle helmets and high-visibility reflective clothing/equipment and bicycle lighting
  - about increased crash risk during peak travel times
- Encourage or provide best practices training among coalitions (e.g., law enforcement communities, engineering, etc.)
- Integrate vulnerable users into existing high-visibility enforcement and public education campaigns, (i.e., obey all traffic laws)
- Develop bicycle safety education and awareness programs targeting healthcare and schools
- Reach out to bicycle advocacy groups to specifically target and address the local bike needs and concerns
- Disseminate bicycling safety messages through the use of social media

### ENFORCEMENT

- Enforce traffic laws for both bicyclists and motorists for public safety
- As appropriate, implement the *Enhancing Bicycle Safety: Law Enforcement's Role* made available by NHTSA on-line
- Disseminate bicycling safety messages through the use of social media

### ENGINEERING

- Utilize best practices for complete streets design from AASHTO and National Association of City Transportation Officials (NACTO) sources
- Promote systemic design solutions that reduce conflict points, minimize exposure at roadway crossings, separate modes, and reduce speed when practical
- Create and implement a bike network plan with the goal of improving the viability of this travel mode and encouraging its use
- Install:
  - "Share the Road" signs where appropriate
  - "Bike Route" wayfinding signage for direction and distance to destinations
  - bike marking where appropriate (e.g., bike lanes, bike boxes at intersections, etc.)
  - protected bike lanes where practical
  - four-foot wide minimum shoulders where appropriate
  - signals with technology that detect bicyclists
- Continue to fund and implement the Safe Routes to School program through the Transportation Alternatives

### PUBLIC POLICY/OTHER

- Increase the number of communities with bicycle helmet ordinances
- Encourage municipalities to become a bicycle-friendly community
- Support Complete Streets Policy and Implementation and Livable Communities Initiatives, in accordance with state law
- Consider expansion of Move Over Law to include stranded motorist or other vulnerable roadway users

### PERFORMANCE MEASURES

- Number of bicycle-rider fatalities and serious injuries

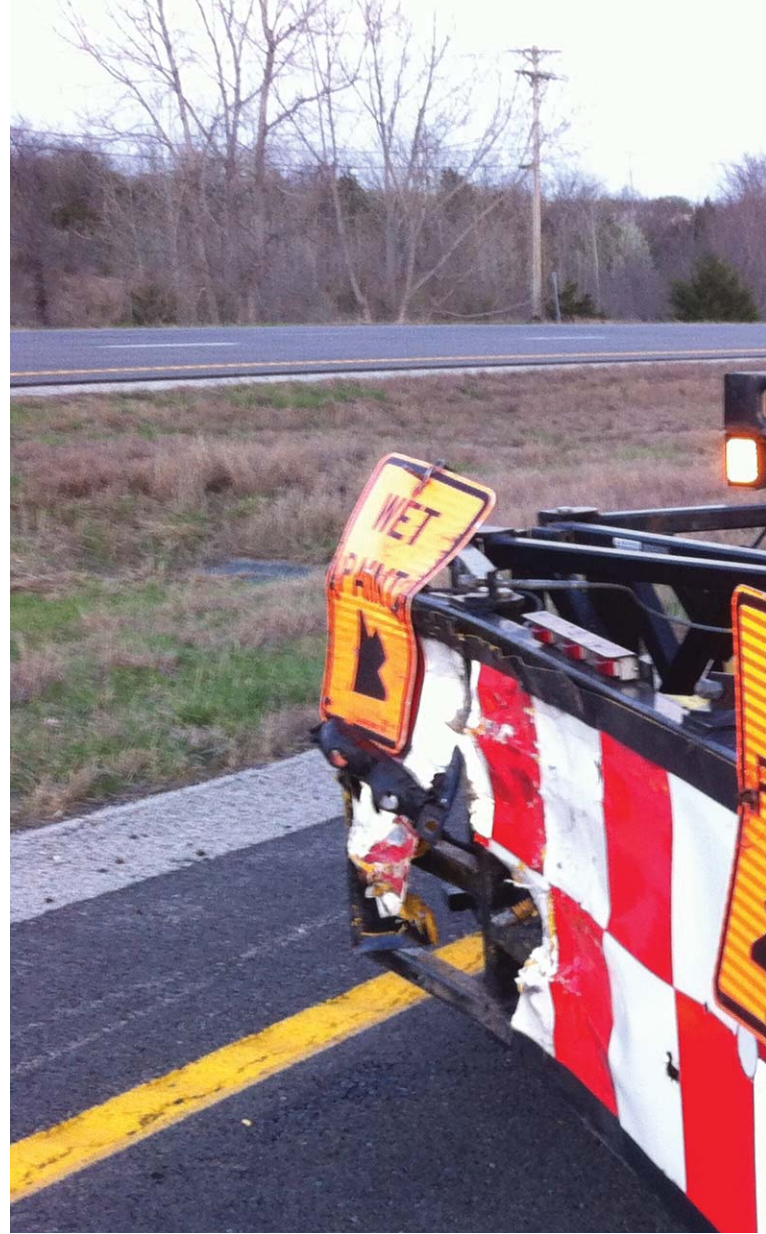


*57% of bicycle  
fatalities took place  
between  
3 P.M. & 9 P.M.*



# EMPHASIS AREA V

## SPECIAL ROADWAY ENVIRONMENTS



Roadway areas that require special attention include work zones, highway/rail crossings, and traffic incident management areas. Although the number of fatalities and serious injuries are lower in comparison to other emphasis areas, the potential for great harm in a crash is extremely high.

Driving at night challenges drivers' skills and physical abilities. In addition, more unrestrained and substance-impaired drivers operate at night, placing themselves, other motorists, emergency responders, pedestrians and construction and maintenance workers at increased risk.

This section addresses four special roadway environments.

- Nighttime Driving
- Work Zone
- Highway/Rail Crossing
- Traffic Incident Management Area



The table below illustrates fatalities and serious injuries by special roadway environment.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Nighttime Driving	384	332	321	1,037	1,861	1,607	1,469	4,937
Work Zone	9	9	8	26	73	34	55	162
Highway/Rail Crossing	7	2	1	10	6	13	10	29

The table below illustrates fatalities and serious injuries in Traffic Incident Management Areas (TIMA), whether from secondary crashes or other non-recurring incidents. This is an area of highway where an incident or emergency has occurred and emergency personnel are responding to the scene.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Traffic Incident Management Area	21	21	25	67	119	161	115	395



## NIGHTTIME DRIVING

### THE CHALLENGE

Nighttime driving conditions pose unique challenges for drivers. Glare, limited sight distance, low light conditions and varying degrees of roadway visibility create an environment for additional opportunities for driver error. During the past three years, 44 percent of Missouri traffic fatalities occurred in nighttime conditions. According to research conducted by the National Highway Traffic Safety Ad-

ministration (NHTSA), safety belt use is lower at night versus the day. Of the vehicle drivers and occupants killed in Missouri traffic crashes from 2012 to 2014, 59 percent were not wearing safety belts in daytime compared to 74 percent at night. Substance-impaired drivers were more prevalent at nighttime and were involved in 40 percent of the nighttime fatalities in the same three-year period.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Nighttime Driving	384	332	321	1,037	1,861	1,607	1,469	4,937

The table below depicts nighttime driving involved fatalities by roadway designation. Between 2012 and 2014, 20 percent of these fatalities occurred on Missouri numbered routes.

Designation	Fatalities			
	2012	2013	2014	Total
Missouri Numbered	78	68	66	212
City Street	78	70	42	191
Missouri Lettered	58	56	61	175
Interstate	55	47	56	158
U.S. Route	51	41	44	136
County Road	46	44	42	132
*Other	18	6	9	33
Total	384	332	321	1,037

\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts nighttime driving involved fatalities in addition to meeting one or more of the below conditions. In Missouri, 58 percent of nighttime fatalities involved an aggressive driver.

Crash Type	FATALITIES		
	2012	2013	2014
*Aggressive Driver Involved	219	202	176
Unrestrained Drivers & Occupants	194	164	141
Substance-Impaired Driver Involved	152	143	116
Unlicensed/Improperly Licensed Driver Involved	87	72	76
Young Driver (Age 15-20) Involved	61	58	50
Pedestrians	64	52	45
Commercial Motor Vehicle Driver Involved	38	25	35
Older Driver (Age 65 & Over) Involved	29	36	28
Motorcycle Driver Involved	39	20	33
Distracted/Inattentive Driver Involved	20	27	17

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.

Vehicle occupants  
killed during the

DAY

59% were  
UNRESTRAINED

VS.

Vehicle occupants  
killed at

NIGHT

74% were  
UNRESTRAINED

## KEY STRATEGIES

### EDUCATION

- Educate public:
  - on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME - day and night
  - about the risks associated with nighttime driving (e.g., substance impaired, drowsy driving, limited sight distance, head light glare, etc.)
  - on dangers of distracted driving (e.g., texting, technology installed in vehicle, technology installed on phone, etc.)
  - about nighttime driving safety tips (e.g., dim headlights for on-coming vehicles, slow down, watch for unexpected pedestrians or bicyclists, etc.)
  - on how to exit a vehicle and stay off roadway, (e.g., when waiting for tow truck, when involved in a crash, etc.)
  - on purpose/use of mile marker posts
- Educate first responders and motorists on importance of entering and accessing emergency contact information into cell phones
- Educate parents and guardians on GDL restrictions for nighttime driving
- Use flyers, video, social media, press releases, DMS boards and fact sheets to educate motorists on dangers of nighttime driving

### EMERGENCY RESPONSE

- Continue to improve emergency response time through better planning and communication
- Provide emergency response driver training to include emphasis on proper safety belt usage
- Ensure all emergency responders are visible to all roadway users (e.g., emergency lighting, scene lighting, approved personal protection equipment (PPE), etc.)
- TIM training for emergency responders by:
  - using post incident reviews to improve incident management practices

### ENFORCEMENT

- Use enforcement to increase nighttime safety belt use
- Expand the number of nighttime sobriety checkpoints/ alcohol saturation patrols

- Support targeted nighttime enforcement along high-crash corridors by:
  - using crash reporting and mapping data for identification
- Enforce GDL law (e.g., curfew, etc.)

### ENGINEERING

- Install:
  - center and edgeline strips/strips and rumble stripes
  - roadway lighting where appropriate
  - Safety Edge™
- Minimize edge drop-offs
- Expand and maintain roadway visibility features for all weather conditions (e.g., brighter stripes, delineation, signs, etc.)
- Add structures or other measures to mitigate vehicle to wildlife collisions

### TECHNOLOGY

- Educate and encourage the use of in-vehicle edgeline and lane proximity warning devices to warn drivers before they leave the roadway or cross the center line
- Educate drivers and encourage the use of vehicle technology to recognize moving objects near roadway, automatic-dimming headlights, adaptive cruise control, etc.
- Encourage automobile industry to:
  - develop an early warning system to notify oncoming traffic of an incident ahead
  - offer polarized windshields
- Use flashing wrong-way signs and dynamic message signs to alert wrong-way drivers and general public

### PUBLIC POLICY/OTHER

- Enact a primary safety belt law to include all seating positions
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving
- Evaluate GDL for strengthening opportunities for nighttime curfew

### PERFORMANCE MEASURES

- Number of nighttime fatalities and serious injuries
- Percent of nighttime unrestrained vehicle driver and occupant fatalities and serious injuries
- Number of nighttime substance-impaired driving fatalities and serious injuries
- Number of nighttime distracted driving fatalities and serious injuries



## WORK ZONE

### THE CHALLENGE

A work zone is a temporary roadway environment that poses risk to utility, construction and maintenance workers as well as the driving public. These areas are identified by warning signs/signals/indicators, including those on transport devices (e.g., signs, flashing lights, etc.) that mark the beginning and end of a construction, maintenance or utility work area. A work zone extends from the first warning sign, signal or flashing lights to the "END ROAD WORK" sign or the last traffic control device for that work activity.



Work zones also include roadway sections where there is ongoing, moving (mobile) work activity such as lane line painting/markings or roadside mowing only if the beginning of the ongoing, moving (mobile) work activity is designated by warning signs or signals.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Work Zone	9	9	8	26	73	34	55	162

The table below depicts work zone involved fatalities by roadway designation. Between 2012 and 2014, 35 percent of these fatalities occurred on Interstate routes.

Designation	Fatalities			
	2012	2013	2014	Total
Interstate	2	5	2	9
Missouri Numbered	4	2	1	7
U.S. Route	0	1	3	4
City Street	2	0	0	2
Missouri Lettered	1	1	0	2
County Road	0	0	1	1
*Other	0	0	1	1
Total	9	9	8	26

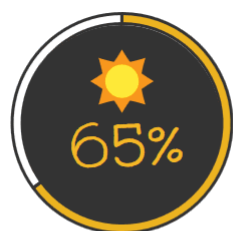
\*Other includes business routes, ramps, outer roads, loops, conservation access roads, etc.

The table below depicts work zone involved fatalities in addition to meeting one or more of the below conditions. In the past three years, 38 percent of fatalities that occurred in a Missouri work zone involved an aggressive driver.

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	5	3	2
Unrestrained Drivers & Occupants	2	4	4
Commercial Motor Vehicle Driver Involved	2	3	3
Older Driver (Age 65 & Over) Involved	3	0	5
Substance-Impaired Driver Involved	2	0	3
Young Driver (Age 15-20) Involved	1	2	1
Motorcycle Driver Involved	1	1	1
Unlicensed/Improperly Licensed Driver Involved	0	0	1
Distracted/Inattentive Driver Involved	1	0	0

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



of fatalities that  
occurred  
in work zones  
took place during the  
**DAY**

## KEY STRATEGIES

### EDUCATION

- Educate:
  - drivers on their responsibilities to safely drive through all work zones (e.g., using videos, social media, press releases, PSA, etc.)
  - public on the use of safety belts and child safety seats - every trip, everyone, EVERY TIME, day and night
  - all law enforcement on work zone crash reporting through STARS training from MSHP
  - maintenance, construction, utilities and local agencies about the benefits of wearing required personal protection equipment
  - workers on the importance of setting up work zones to account for and reduce sun glare
- Promote “Rate Our Work Zone” survey campaign to the general public (e.g., using social media, press release, mailings, signs, etc.)
- Maintain work zone safety training for contractors, engineers, maintenance personnel and law enforcement
- Emphasize work zone safety at internal MoDOT and external partner meetings (e.g., contractors, suppliers, LPAs, etc.)
- Conduct flagger training or refresher courses on proper flagging procedures (e.g., utilize Missouri LTAP for training, etc.)
- Verify flagging personnel are certified flaggers
- Encourage cross training with multiple disciplines (e.g., contractors, police, fire, EMS, towing, etc.)

### EMERGENCY RESPONSE

- Educate first responders on the importance of incident management and quick clearance practices within work zones using Traffic Incident Management (TIM) responder training
- Ensure emergency response personnel wear high-visibility apparel
- Coordinate with EMS and tow truck companies to ensure close proximity to work zone for quick response
- TIM responder training; include EMS in TIM implementation plan and through corridor teams

### ENFORCEMENT

- Ensure law enforcement personnel wear high-visibility apparel
- Increase active and/or passive enforcement in work zones by providing grants and continuing to work with MoDOT districts to identify priority work zones
- Consider updating MSHP crash report to better capture work zone information (e.g., active, non-active, stationary, mobile, etc.)

### ENGINEERING

- Ensure work zones are properly set up (e.g., signs, barricades, delineators, etc.) and maintained through the life of the project
- Encourage:
  - increased use of work zone inspections, training, typical application (TAs) and traffic control plans
  - use of pilot cars when appropriate
- Develop traffic management plans utilizing multidisciplinary teams to minimize work zone impacts, manage queue length and speeds
- Include contractors or local partners in work zone reviews
- Utilize MoDOT EPG and available tools and/or appropriate local policies or guides
- Implement:
  - contractor submittal of worker and traffic safety plans
  - sequential lighting in nighttime, rural, multi-lane divided roadway work zones
- Use simulation models to determine work zone impacts on traveling public and install advanced warning indicators if necessary
- Consider contractor incentives for safe, visible and timely work zones
- Deploy and implement work zone mobility coordination to provide engineering expertise for monitoring performance of the work zone



## TECHNOLOGY

- Use technology to monitor speeds, delays and queues and provide advance warning to motorists as they approach the work zone
- Use dynamic message signs to display work zone alerts and safety messages
- Use traveler information tools to display work zone impacts to motorists (e.g., MoDOT's mobile app, press releases, KC Scout, Gateway Guide, Ozark Traffic, etc.)
- Use technology to minimize exposure to highway maintenance and construction workers
- Encourage the expansion of traffic data for more accurate detection and monitoring of stopped or slowed traffic
- Investigate use of autonomous Truck Mounted Attenuator (TMA)

- Encourage industry to develop an on-site emergency warning system to warn oncoming motorists of an incident ahead by broadcasting a warning

## PUBLIC POLICY/OTHER

- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving

## PERFORMANCE MEASURES

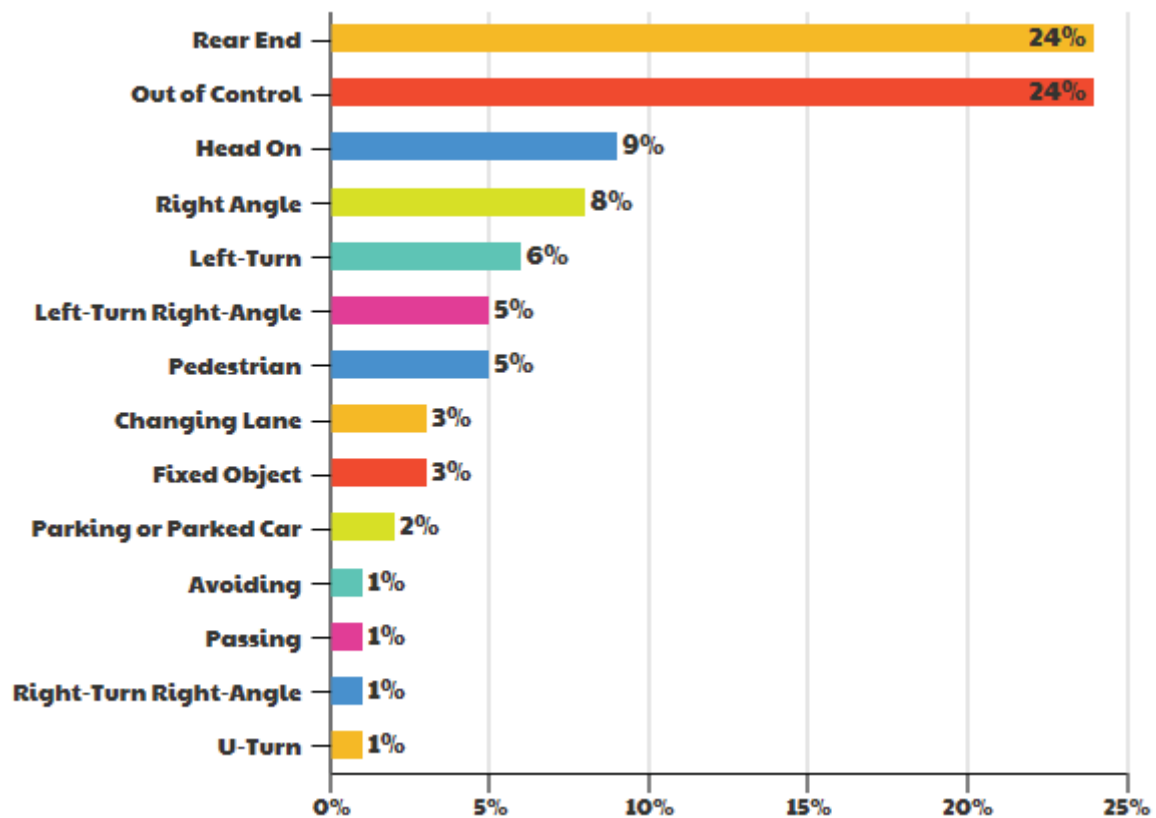
- Number of fatalities and serious injuries in work zones
- Number of lane closures versus number of work zone crashes



**23%** of fatalities that occurred in a Missouri work zone involved a **DISTRACTED, SPEEDING or SUBSTANCE-IMPAIRED driver.**

**These factors pose additional risk to workers in a work zone.**

**CRASH CLASSIFICATION FOR WORK ZONE FATALITIES & SERIOUS INJURIES  
2012-2014**





## HIGHWAY/RAIL CROSSING

### THE CHALLENGE

There are currently 4,313 public railway-highway crossings in Missouri, which includes 1,699 equipped with active warning devices, 1,533 equipped with passive warning devices and 1,081 grade separations. Improving grade crossing safety is an enormous challenge which requires combined efforts of railroads; the state, local and federal governments; public safety officials and the public. According to a United States Department of Transportation report, more



than 94 percent of crossing incidents are caused by risky driver behavior. Since 2005, 70 people died in highway/ rail crossing crashes in Missouri.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Highway/Rail Crossing	7	2	1	10	6	13	10	29

The table below depicts highway/rail crossing fatalities by roadway designation. Between 2012 and 2014, 70 percent of these fatalities occurred at county road crossings.

Designation	Fatalities			
	2012	2013	2014	TOTAL
County Road	5	1	1	7
City Street	2	0	0	2
Missouri Numbered	0	1	0	1
Total	7	2	1	10

The table below depicts highway/rail crossing fatalities in addition to meeting one or more of the below conditions. In the past three years in Missouri, 90 percent of the drivers and occupants killed in highway/rail crossing crashes were unrestrained.

Crash Type	Fatalities		
	2012	2013	2014
Unrestrained Drivers & Occupants	6	2	1
Substance-Impaired Driver Involved	2	0	0
Distracted/Inattentive Driver Involved	2	0	0
Young Driver (Age 15-20) Involved	0	1	0
Pedestrians	1	0	0

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.



of highway/rail crossing fatalities  
took place during the  
**DAY**

## KEY STRATEGIES

### EDUCATION

- Promote Operation Lifesaver's:
  - "See Tracks? Think Train!" message
  - resources, statistics and training

### EMERGENCY RESPONSE

- Educate and train EMS, fire and law enforcement personnel on the particular challenges of train/vehicle crashes and train derailments

### ENFORCEMENT

- Aggressively enforce laws against:
  - driving around lowered gates
  - commercial motor vehicle drivers pulling onto railroad tracks without sufficient space to clear the tracks
- Encourage:
  - use of automated enforcement at railroad crossings
  - law enforcement to team up with railroad industry to conduct "Officer on the Train" enforcement days

### ENGINEERING

- Expand current light and gate projects
- Install:
  - retro-reflective strips on appropriate signs
  - auxiliary lanes for vehicles that are required to stop at all rail crossings
- Modify locations without sufficient vehicle storage space
- Improve sight distance at crossings to ensure clear zones (e.g., trimming trees, clearing brush, etc.)

- Encourage use of:
  - alternative safety devices at railroad crossings including the use of walk/don't walk lights on sidewalks and auxiliary pole lighting to further illuminate crossing at night
  - median barriers on both sides of railroad crossing to deter driving around gates
  - double gate arms at crossings or arms that extend across both lanes of traffic
  - closure of redundant crossings to redirect traffic to crossings with the latest safety equipment
- Create grade separated crossings (i.e., overpass or underpass the highway rail)

### TECHNOLOGY

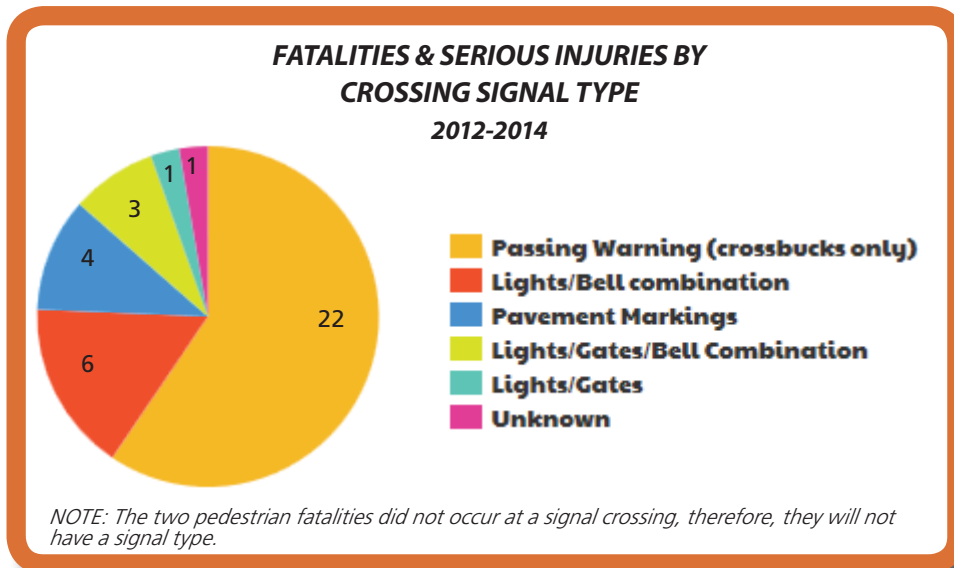
- Use automated enforcement to identify gate violations

### PUBLIC POLICY/OTHER

- Actively encourage Federal Railroad Administration to regulate blocked crossings so that drivers do not attempt to beat the train
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving

### PERFORMANCE MEASURES

- Number of fatal and serious injury crashes involving highway/rail crossings
- Number of fatalities and serious injuries involving highway/rail crossings



## TRAFFIC INCIDENT MANAGEMENT AREA

### THE CHALLENGE

Emergency response is complex due to the many entities that may be involved. These include fire and rescue, emergency medical services, law enforcement, state departments of transportation (SDOTs) and local transportation agencies, towing and recovery, other drivers at the crash scene and the crash victims themselves.

The likelihood of a secondary crash increases by 2.8 percent for every minute that the primary incident remains a hazard, and secondary crashes alone are responsible for an estimated 18 percent of all freeway fatalities and 20 percent of all collisions, as cited by *Traffic Incident Management Handbook*.

Impacts from incidents can be reduced or mitigated through coordination of highway traffic management and emergency response resources. Responders must be able to get to the crash scene, which can be difficult for both remote rural areas and congested metro areas. In addition, responders must be able to secure the scene to protect the safety of victims and themselves. Finally, the crash scene must be cleared as quickly as possible to reduce the risk of secondary crashes and restore normal traffic flow.

As congestion increases, and with limited funding available to increase capacity, the implementation of traffic incident management best practices are becoming even more critical.

	Fatalities				Serious Injuries			
	2012	2013	2014	Total	2012	2013	2014	Total
Traffic Incident Management Area	21	21	25	67	119	161	115	395

The table below depicts traffic incident management area fatalities by roadway designation. These fatalities occurred with another crash or other incident ahead. Between 2012 and 2014, 51 percent of these fatalities occurred on Interstate routes.

Designation	Fatalities			Total
	2012	2013	2014	
Interstate	13	10	11	34
Missouri Numbered	5	5	6	16
U.S. Route	3	0	4	7
Missouri Lettered	0	4	2	6
City Street	0	1	1	2
County Road	0	1	1	2
Total	21	21	25	67

The table below depicts traffic incident management area fatalities in addition to meeting one or more of the below conditions. Aggressive drivers were involved in 46 percent of the fatalities.

Crash Type	Fatalities		
	2012	2013	2014
*Aggressive Driver Involved	8	7	16
Commercial Motor Vehicle Driver Involved	7	7	8
Older Driver (Age 65 & Over) Involved	5	8	7
Pedestrians	7	6	2
Distracted/Inattentive Driver Involved	3	6	4
Substance-Impaired Driver Involved	4	2	6
Young Driver (Age 15-20) Involved	5	3	3
Unlicensed/Improperly Licensed Driver Involved	0	2	8
Unrestrained Drivers & Occupants	2	4	3
Motorcycle Driver Involved	1	0	2

Crashes can involve more than one factor (e.g., aggressive driving, unrestrained occupants, distracted/inattentive driving, etc.); therefore, adding these numbers together will represent more than the total number of fatalities.

\*Aggressive driving includes speed exceeded limit, too fast for conditions, following too close, improper passing and improper lane usage/change.



of traffic incident  
management area  
fatalities took  
place at  
**NIGHT**



## KEY STRATEGIES

### EDUCATION

- Promote:
  - Strategic Highway Research Program (SHRP2) TIM Responder Safety Training (e.g., multidisciplinary, towing, EMS, DOT, fire, media, law enforcement, hazmat, etc.)
  - and educate on the importance of utilizing high-visibility apparel for emergency responders in all lighting conditions
- Educate responders:
  - on the importance of incident management and quick clearance practices
  - on how to maneuver incident scene to keep traffic lanes open at crash location
  - and motorists on importance of entering and accessing emergency contact information in cell phones
- Educate the public:
  - about the dangers of exiting a disabled or crashed vehicle
  - about the availability and use of real time traffic information tools (e.g., MoDOT mobile app, traveler information map, etc.)
  - on Missouri's Move Over Law and Move It Law
- Enhance training for all responders on skills to deal with CMV, new technologies, alternative fuels, extrication and safe vehicle operation
- Provide training on emergency traffic control to all responders
- Require IS-100 and IS-700 National Incident Management Structure (NIMS) training courses for all responders
- Encourage scheduling of clean up during off-peak, planned times

### EMERGENCY RESPONSE

- Develop app, flyers, social media, video and PSAs to educate public on In Case of Emergency (ICE)
- Promote other successful state programs such as Yellow Dot program (on windshield) which indicates emergency information in glove compartment
- Coordinate, develop, and implement incident management plans for interstate and high-priority corridors with enforcement

### ENFORCEMENT

- Increase the enforcement of Missouri's Move Over Law and utilization of Move It Law
- Move Over Law – educate enforcement on grants available
- Move It Law -TIM training
- Support training for law enforcement on the 2012 Missouri Uniform Traffic Crash Report to enable development of a baseline for

crashes involving emergency response vehicles and secondary crashes

- Inform local agencies of availability of local MSHP troop training

### ENGINEERING

- Continue to expand access to systems such as Dynamic Message Signs (DMS) and other systems that can display incident information
- Work with response partners to expand the use of mile markers on priority incident corridors
- Create barrier openings or emergency crossovers where needed/appropriate
- Add crash pull off sites
- Design/modify identified incident bypass routes to accommodate interstate traffic (e.g., increase turning radii, improve pavement condition, add shoulders, replace bridges, etc.)

### TECHNOLOGY

- Use technology /innovation to support TIM (e.g., mobile apps, etc.)
- Link EMS data with crash data
- Integrate CADD/911 feeds into TMCs and ATMS software for quicker incident notification
- Deploy technology to allow for quick crash scene assessment and investigations for quicker clearance
- Encourage use of interoperable emergency communication equipment (e.g., compatible radio systems to enhance TIM operations, etc.)

### PUBLIC POLICY/OTHER

- Increase public awareness of the importance of:
  - yielding the right of way to emergency vehicles and raise public and law enforcement awareness of Move Over and Move It laws
  - moving disabled vehicles involved in non-injury crashes from the roadway as soon as practical to keep these vehicles from potentially obstructing emergency vehicle access to the crash scene
- Work with all responders and agencies to promote and endorse a statewide "Open Roads Philosophy" with TIM training
- Expand current legislation to restrict texting for all drivers
- Enact legislation to restrict all cell phone use while driving

### PERFORMANCE MEASURES

- Number of fatalities and serious injuries resulting from secondary crashes and other incidents, such as a stalled vehicle
- Average time to clear traffic incidents on state system
- Average EMS response time from the time of call to departure to incident scene
- Average EMS on-scene time to in route to trauma center
- Number of TIM responders trained



# EMPHASIS AREA VI

## DATA & DATA SYSTEM IMPROVEMENTS



Three focus areas are discussed in this section.

- Data Collection
- Data Accessibility
- System Linkage



Without accurate data, evidence-based decisions about the direction of highway safety programs cannot be made. Accurate traffic records data are the backbone of an effective safety management system. The Statewide Traffic Records System (STARS) provides the information necessary for successful highway safety

efforts at the city, county, and state levels. STARS is used in problem identification and underlies the establishment of goals and performance measures. It also helps planners allocate resources and evaluate countermeasures. Traffic records data must be timely, accurate, complete, uniform, accessible, and suitable for linking to other data sources.

## DATA COLLECTION

### THE CHALLENGE

The identification of data sharing opportunities using state and local data systems should be promoted. The electronic transfer of data from local agencies to state databases ensures the data are timely, accurate and complete. Stakeholders in Missouri's highway safety efforts must encourage the development and implementation of statewide data collection.

### KEY STRATEGIES

- Encourage:
  - law enforcement agencies to electronically submit crash data as soon as possible
  - local law enforcement agencies to report DWI arrest information to the DWI Tracking System (DWITS)
  - municipal courts to electronically submit adjudication data as soon as possible and provide operational and funding assistance
- Strengthen efforts to provide operational and funding assistance for electronic crash data submission
- Increase:
  - the electronic reporting of the charge disposition from courts using the statewide case management system to the Department of Revenue's driver license system
  - the availability of data from the state systems (e.g., DHSS, OSCA, MSHP, DOR, MoDOT, etc.) to local data users

### PERFORMANCE MEASURES

- Percent of crash reports submitted electronically
- Number of agencies submitting crash reports electronically
- Number of agencies submitting/entering data into DWITS database
- Average number of days from the date of a driver's violation to the date of entry into the state database

## DATA ACCESSIBILITY

### THE CHALLENGE

The traffic records user community cannot access the major component data files of the STARS through a single portal. To support this access, the State of Missouri should promote an enterprise architecture and database and develop a traffic records clearinghouse to serve as the gateway for users. The databases in the clearinghouse should be linked in ways that support highway safety analysis. At a minimum, this would include linkage by location, involved persons and events.

### KEY STRATEGIES

- Continue:
  - efforts to automate search and data retrieval from the driver and vehicle files for autopopulation of crash and citation forms
  - to allow the access to Missouri Ambulance Reporting System by state partners
- Reduce the number of days:
  - from the crash date to the date the electronic crash report is entered into STARS/TMS to less than 60 days
  - from the crash date to the date the hard copy crash report is entered into STARS/TMS to less than five months
  - from the date of an EMS run to the date when the EMS patient care report is entered to seven days
- Increase the availability of data from the state systems (e.g., DHSS, OSCA, MSHP, DOR, MoDOT, etc.) to local data users

### PERFORMANCE MEASURES

- Number of users gaining data from the Missouri State Highway Patrol's crash report website
- Average number of days from the crash date to the date the crash report is entered into the state database
- Average number of days from date of an EMS run to the date when the EMS patient care report is entered



## SYSTEM LINKAGE

### THE CHALLENGE

Data should be integrated to provide linkage between components of the traffic records system. Examples of valuable linkages for highway and traffic safety decision making include crash data with roadway characteristics, location, and traffic counts; crash data with driver and vehicle data; crash data with adjudication data; and healthcare treatment data.

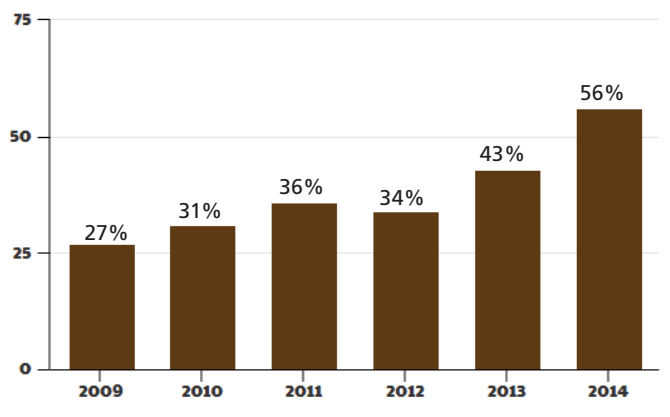
### KEY STRATEGIES

- Improve the State's traffic records data systems capacity to integrate the crash, roadway, citation/adjudication, vehicle, driver, and injury surveillance systems

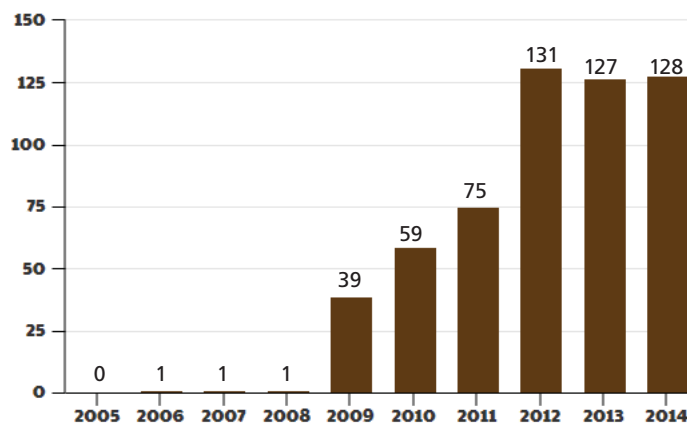
### PERFORMANCE MEASURES

- Track progress towards development of a data warehouse consisting of the crash, roadway, citation/adjudication, vehicle, driver, and injury surveillance systems

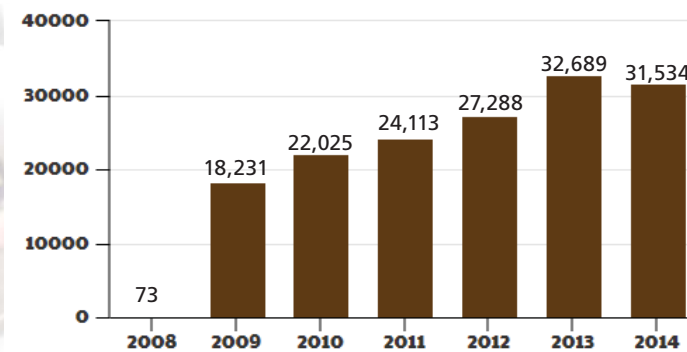
Percent of Crash Reports Submitted Electronically



Number of Agencies Submitting Crash Reports Electronically



Number of Crash Reports Transferred from REJIS to STARS Database





## GLOSSARY

**AAA** (American Automobile Association) ~ Is a federation of motor clubs throughout North America that is a non-profit member service organization that provides services to its members, including roadside assistance and others.

**AARP** (American Association of Retired Persons) ~ The nation's leading organization for people age 50 and older.

**AASHTO** (American Association of State Highway and Transportation Officials) ~ Nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico. Represents all five transportation modes: air, highways, public transportation, rail and water. Works to educate the public and key decision makers about the critical role that transportation plays in securing a good quality of life and sound economy for our nation. Serves as a liaison between state departments of transportation and Federal government.

**Access Management Planning** ~ Comprehensive systematic control of location, spacing, design and operation of driveways, median openings, interchanges, and street connections to a roadway, in an effort to integrate planning and engineering practices with the transportation and land use decisions that contribute to access outcomes.

**ADA** (Americans with Disabilities Act) ~ A civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public

**Aggressive-Driver Related Crash** ~ Involved a driver who committed one or more of the following violations that contributed to the cause of the crash: speed exceeded limit, too fast for conditions, following too close, improper passing, or improper lane usage/change.

**OTA** (American Occupational Therapy Association) ~ Is the national professional association established in 1917 to represent the interests and concerns of occupational therapy practitioners and students of occupational therapy and to improve the quality of occupational therapy services.

**AIR** (Alcohol Influence Report) ~ A Missouri Department of Revenue report form utilized by law enforcement to document the officers' observations made regarding the level of impairment (alcohol and/or drugs) at roadside

**CDL** (Commercial Drivers License) ~ A CDL allows an individual to legally drive a commercial motor vehicle.

**Channelizer Delineators** ~ Temporary traffic control device used to guide traffic or delineate an unsafe condition.

**CMV** (Commercial Motor Vehicle) ~ Any vehicle with a gross vehicle weight rating greater than 10,000 pounds (no matter what the vehicle body type), buses or school buses having occupant capacities of nine or more including the driver, and any vehicle that displays a hazardous materials placard.

**Complete Streets** ~ Designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

**CVSA** (Commercial Vehicle Safety Alliance) ~ Is a nonprofit association comprised of local, state, provincial, territorial and federal commercial motor vehicle safety officials and industry representatives. The Alliance aims to achieve uniformity, compatibility and reciprocity of commercial motor vehicle inspections and enforcement by certified inspectors dedicated to driver and vehicle safety.

**Delineator** ~ A retroreflective device mounted on the roadway surface or at the side of the roadway in a series to indicate the alignment of the roadway, especially at night or in adverse weather.

**DMS** (Dynamic Message Signs) ~ Are stationary traffic control devices capable of displaying one or more alternative messages that provide travelers with real-time, traffic-related variable messages. DMSs are used to warn, regulate, route and manage traffic.

**DRE** (Drug Recognition Expert) ~ A police officer trained to recognize impairment in drivers under the influence of drugs other than, or in addition to, alcohol.

**Dynamic Flashing Beacons** ~ A flashing red or yellow light used to capture motorists' attention and warn them about an unusual condition. A dynamic flashing beacon is only flashing when the unusual condition is present.

**EMS** (Emergency Medical Services) ~ A critical component of the emergency and trauma care system that provides response and medical transport to the sick and injured. EMS is a crucial link to survival in the chain of care.

**EPG** (Engineering Policy Guide) ~ A document that provides a single reference for all engineering and engineering-related guidance in order to build a good transportation system and increase taxpayers' trust in its ability to deliver what was promised.

**Fatal Crash** ~ Identifies a motor vehicle crash where victim(s) must have died within 30 days of the crash for the crash to be coded in this manner.

**Fatality** ~ Identifies a person who dies as the result of a traffic crash; the fatality victim(s) must have died within 30 days as a result of their injuries sustained in the crash.

**FHWA** (Federal Highway Administration) ~ Is an agency within the U.S. Department of Transportation that supports State and local governments in the design, construction, and maintenance of the Nation's highway system (Federal Aid Highway Program) and various federally and tribal owned lands (Federal Lands Highway Program).

**FMCSA** (Federal Motor Carrier Safety Administration) ~ The primary mission of FMCSA is to reduce crashes, injuries and fatalities involving large trucks and buses.

**GDL** (Graduated Drivers License) ~ Missouri's GDL law requires that all first-time drivers between 15 and 18 years old complete a period of driving with a licensed driver (instruction permit), and restricted driving (intermediate license), before being issued a full driver license.

**GVWR** (Gross Vehicle Weight Rating) ~ The value specified by the manufacturer as the loaded weight of a single vehicle.

**High Risk Rural Roads** ~ Any roadway functionally classified as a rural major or minor collector or a rural local road with severe crash experience in the previous 5-year period, is classified as a High Risk Rural Road (as per MAP-21). Focusing on severe crash experience is a guiding principle of *Missouri's Blueprint ~ A Partnership Toward Zero Deaths*.

**HMV** (Hazardous Moving Violation) ~ Includes any traffic violations of a potentially hazardous nature including, but not limited to, speeding, DWI, Careless and Imprudent, stop sign/signal violation, following too closely, failure to signal.

**HFST** (High Friction Surface Treatment) ~ A thin layer of specially engineered, durable, high friction aggregates as a topping on a thermosetting polymer resin binder – usually epoxy, modified polyester, or urethane. These aggregate systems have a long lasting skid resistance, while also making the overlay much more resistant to wear and polishing.

**ICE** (In Case of Emergency) ~ Enables first responders to identify victims and reach their emergency contacts; people enter the information into their mobile phone using the name ICE.

**ITE** (Institute of Transportation Engineers) Standards ~ ITE is one of five “standards development organizations” designated by the U.S. Department of Transportation to develop Intelligent Transportation Systems standards.

**LETS** (Law Enforcement Traffic System) ~ Supports Missouri law enforcement agencies’ management of crash reports, citation, warning and complaint data. The four systems in one application, coupled with capability for the agencies to customize certain functions to address local requirements, provide a powerful administrative tool.

**LTAP** (Local Technical Assistance Program) ~ A Federal Highway Administration technology transfer program that provides technical assistance and training to local highway departments in the USA.

**Mobility Management** ~ Seeks to optimize all transportation resources in a community. As such, it aims to improve specialized transportation for older adults, people with disabilities, and individuals with lower incomes through a range of activities.

**MHSP** (Missouri State Highway Patrol) ~ Enforce the traffic laws and promote safety on the highways.

**NATCO** (National Association of City Transportation Officials) ~ Is a non-profit association that represents large cities on transportation issues of local, regional and national significance. NACTO views the transportation departments of major cities as effective and necessary partners in regional and national transportation efforts, promoting their interests in federal decision-making.

**NIMS** (National Incident Management System) ~ A systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work together seamlessly and manage incidents involving all threats and hazards – regardless of cause, size, location, or complexity – in order to reduce loss of life, property and harm to the environment.

**NHTSA** (National Highway Traffic Safety Administration) ~ Was established by the Highway Safety Act of 1970 and is dedicated to achieving the highest standards of excellence in motor vehicle and highway safety. It works daily to help prevent crashes and their attendant costs, both human and financial.

**Occupant** ~ A driver and/or passenger(s) on or in a motor vehicle.

**Open Roads Philosophy** ~ Responders from all agencies must first ensure their own safety and the safety and security of any crash victims. Once this is accomplished, their top priority should be to reduce congestion and the high risk of secondary crashes by getting the roadway open as soon as practical without compromising scene safety.

**Optical Speed Bars** ~ A series of lines painted at decreasing intervals on the road that give drivers the illusion that the vehicle is moving faster than it really is; designed to get drivers to slow down.

**PBT** (Preliminary Breath Test) ~ A breath analyzer device used to estimate blood alcohol content (BAC) from a breath sample taken prior to arrest.

**Pedestrian Hybrid Beacon** ~ Formerly known as HAWK (High-Intensity Activated CrossWalk Beacon) is a traffic signal used to stop road traffic and allow pedestrians to cross safely. The purpose of the device is to allow protected pedestrian crossings, stopping road traffic only when pedestrians are present.

**REJIS Commission** (Regional Justice Information Service) ~ Is a government entity created to provide information technology products and services to criminal justice and government agencies.

**Road Safety Audit** ~ A formal safety performance examination of an existing or future road or intersection by an independent multidisciplinary audit team.

**Rumble Strips** ~ Rumble strips alert drivers by causing a vibration and rumbling sound, transmitted through the wheels into the car body. A series of rumble strips is usually applied in the

direction of travel along an edge- or centerline to alert drivers when they drift from their lane.

**Rumble Stripes** ~ Rumble stripes are rumble strips that have pavement marking material (i.e. paint) placed over them. This increases the visibility of the pavement marking when the road is wet.

**Rural** ~ Roadways with a population less than 5,000.

**Safety Edge** <sup>SM</sup> ~ A 30° – 35° asphalt wedge that is placed/formed along each side of the roadway. The wedge ties the existing shoulder into the roadway and allows a vehicle to reenter the roadway safely.

**Secondary Crash** ~ Secondary incidents are unplanned incidents (starting at the time of detection) for which a response or intervention is taken, where a collision occurs either within the incident scene or within the queue (which could include the opposite direction resulting from the original incidents).

**Serious Injury** ~

Such an injury is severe enough in nature that the victim must be transported to the hospital or sustains a permanent, serious injury from the crash.

**STARS** (Statewide Traffic Accident Records System) ~ The source of Missouri’s analytical traffic crash data.

**STEP** (Selective Traffic Enforcement Programs) ~ Law enforcement officers conduct saturation enforcement in high-crash locations or where large numbers of hazardous moving violations occur.

**Substance-Impaired** ~ A person impaired by alcohol and/or other drugs which causes a deterioration of an individual’s judgment and decrease in his or her physical ability.

**Systemic Safety Improvement/Approach** ~ An improvement that is widely implemented based on high-risk roadway features that are correlated with particular crash types, rather than crash frequency.

**TACT** (Ticketing Aggressive Cars & Trucks) ~ Law enforcement officers conduct saturation enforcement in high-crash locations where large numbers of hazardous moving violations occur involving commercial motor vehicles and passenger vehicles.

**TIM** (Traffic Incident Management) ~ A planned and coordinated multi-disciplinary process to detect, respond to, and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible.

**TMA** (Truck Mounted Attenuator) ~ A device intended to reduce the damage to structures, vehicles, and motorists resulting from a motor vehicle collision. Also known as a crash cushion, crash attenuator, or cowboy cushion.

**Transverse Rumble Strips** ~ Transverse rumble strips are rumble strips that are applied across the direction of travel to warn drivers that they will be required to take action (e.g., stop ahead, turn ahead, etc.).

**TZD** (Toward Zero Deaths) ~ Toward Zero Deaths approach is based on the belief that even one traffic related death on our roadways is unacceptable. The idea was first adopted in Sweden in 1997 as “Vision Zero” and since has been adopted by several states.

**Urban** ~ Roadways with a population greater than or equal to 5,000.

**VMT** (Vehicle Miles Traveled) ~ The total number of miles driven by vehicles within a given time period and geographic area; influenced by factors such as population, the number of vehicles per household, the number of vehicle trips per day and distance traveled.

# DATA

Missouri's web-based data analysis tool, Blueprint Crash Statistics, is available on the [savemolives.com](http://savemolives.com) website. It provides fatal and serious injury crash analysis by state, regional coalition, county, city or troop. The tool also contains fatality crash statistics by emphasis area and age. These data are updated on an annual basis to assist highway safety partners in making decisions about which strategies to implement to address individual crash problems.

This section of the document includes the following Appendices:

Appendix A	Total Fatalities and Serious Injuries by Target Area (Statewide and Regional Coalition)
Appendix B	Total Fatalities and Serious Injuries by Target Area (Missouri State Highway Patrol Troops A - I)
Appendix C	Total Fatalities and Serious Injuries by Target Area (Metropolitan Planning Organizations)
Appendix D	Total Fatalities by Age and Target Area
Appendix E	Crash, Injury and Unrestrained Maps
Appendix F	Development & Implementation Plan
Appendix G	Additional Resources Annual VMT/Centerline Miles/Calculating Rates

## Appendix A

**STATEWIDE**

## Total Fatalities and Serious Injuries by Target Area

2012 - 2014

**Fatalities Involving****Serious Injuries Involving**

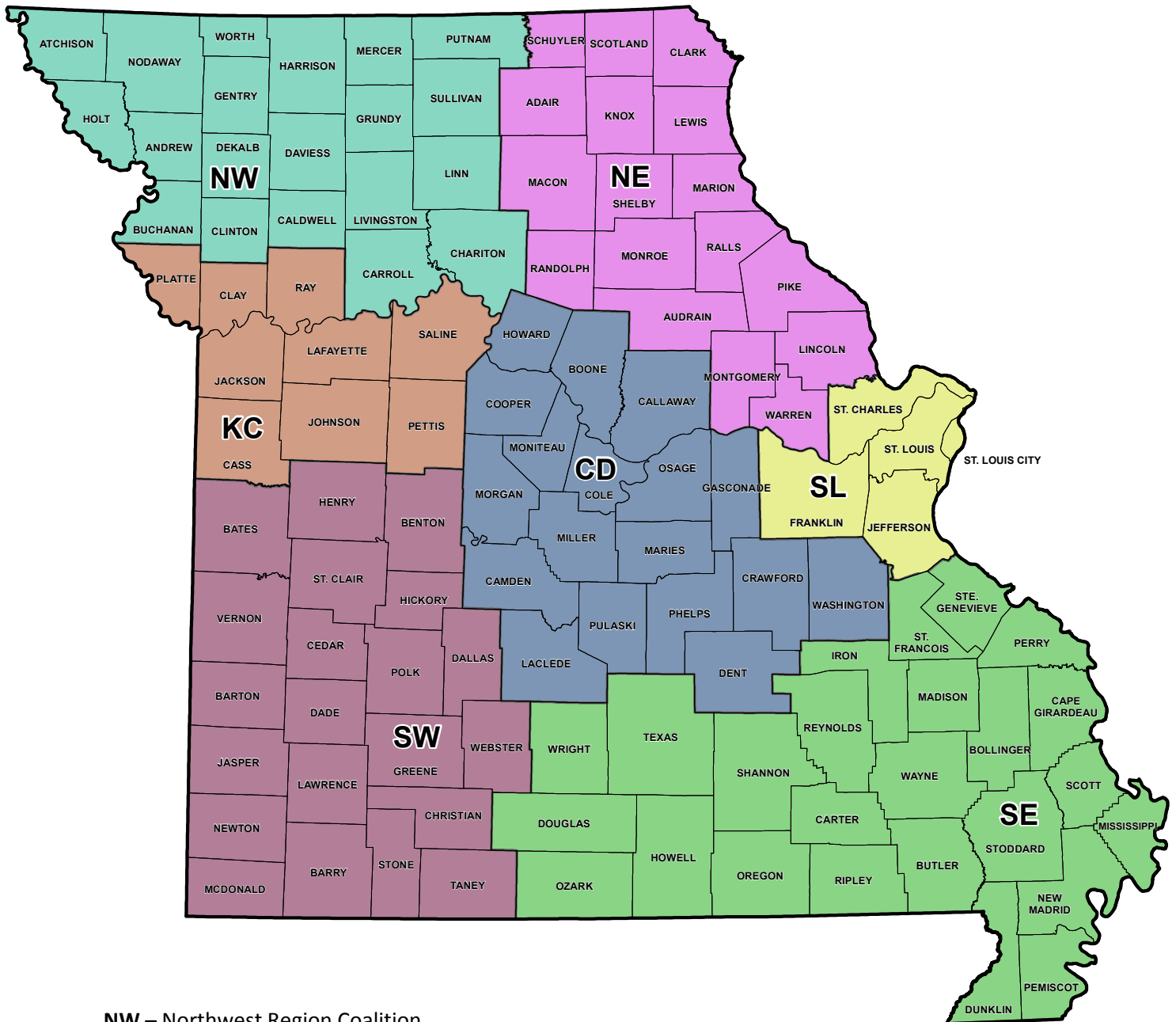
Description	2012	2013	2014	Total	Description	2012	2013	2014	Total
Run-off-Road Crashes	401	365	352	1,118	Run-off-Road Crashes	2,281	1,982	1,936	6,199
Unrestrained Occupants Killed	396	334	327	1,057	Horizontal Curves	1,484	1,245	1,264	3,993
Horizontal Curves	279	263	256	798	Unrestrained Occupants Seriously Injured	1,449	1,240	1,175	3,864
Alcohol and - or Other Drugs	244	239	205	688	Aggressive Driving-Too Fast for Conditions	1,280	1,086	1,102	3,468
Aggressive Driving-Too Fast for Conditions	200	195	164	559	Young Drivers - 15-20	1,261	1,050	932	3,243
Unlicensed / Improperly Licensed Drivers	153	135	159	447	Unsignalized Intersection Crashes	935	828	811	2,574
Collision with Tree	131	141	143	415	Alcohol and - or Other Drugs	912	787	749	2,448
Aggressive Driving-Speed Exceeded Limit	143	121	131	395	Unlicensed / Improperly Licensed Drivers	879	743	772	2,394
Young Drivers - 15-20	135	120	114	369	Distraction / Inattention	860	767	748	2,375
Commercial Motor Vehicle	113	99	111	323	Distracted / Inattentive Drivers	825	722	711	2,258
Head-On Crashes (Non-Interstates)	86	97	109	292	Motorcyclists Seriously Injured	688	555	545	1,788
Older Drivers - 65-75	86	92	102	280	Collision with Tree	634	560	543	1,737
Unsignalized Intersection Crashes	104	76	83	263	Older Drivers - 65-75	512	484	511	1,507
Motorcyclists Killed	102	72	87	261	Head-On Crashes (Non-Interstates)	479	427	450	1,356
Distraction / Inattention	92	85	68	245	Signalized Intersection Crashes	405	454	368	1,227
Pedestrians Killed	86	75	69	230	Aggressive Driving-Speed Exceeded Limit	430	410	359	1,199
Distracted / Inattentive Drivers	85	74	61	220	Commercial Motor Vehicle	389	402	371	1,162
Older Drivers - 76 or Older	60	67	69	196	Aggressive Driving-Following Too Close	345	378	302	1,025
Collision with Utility Pole	25	37	24	86	Older Drivers - 76 or Older	284	249	241	774
Signalized Intersection Crashes	31	24	28	83	Pedestrians Seriously Injured	229	276	252	757
Aggressive Driving-Following Too Close	16	9	17	42	Collision with Utility Pole	178	159	161	498
Head-On Crashes (Interstates)	10	9	10	29	Bicyclists Seriously Injured	73	66	51	190
Work Zones	9	9	8	26	Work Zones	73	34	55	162
Bicyclists Killed	6	4	4	14	Head-On Crashes (Interstates)	27	16	17	60
School Buses/Bus Signal	3	3	4	10	School Buses/Bus Signal	15	19	14	48

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol.

This publication is possible only through the conscientious reporting efforts of Missouri law-enforcement agencies. These statistics are compiled pursuant to federal law, 23 USC Section 152.



# Regional Coalitions



**NW** – Northwest Region Coalition

**NE** – Northeast Region Coalition

**KC** – Kansas City Region Coalition

**CD** – Central District Region Coalition

**SL** – St. Louis Region Coalition

**SW** – Southwest Region Coalition

**SE** – Southeast Region Coalition

## Appendix A

### Region NORTHWEST

#### Total Fatalities and Serious Injuries by Target Area 2012 - 2014

#### NORTHWEST vs. STATE

##### Total Fatalities

Year	NORTHWEST	State	%
2012	46	826	5.57%
2013	32	757	4.23%
2014	36	766	4.70%
<b>Total</b>	<b>114</b>	<b>2,349</b>	<b>4.85%</b>

##### Total Serious Injuries

Year	NORTHWEST	State	%
2012	365	5,506	6.63%
2013	322	4,938	6.52%
2014	313	4,657	6.72%
<b>Total</b>	<b>1,000</b>	<b>15,101</b>	<b>6.62%</b>

#### NORTHWEST

##### Fatalities Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	26	17	17	60
Unrestrained Occupants Killed	28	14	15	57
Alcohol and - or Other Drugs	15	13	8	36
Aggressive Driving-Too Fast for Conditions	10	13	6	29
Horizontal Curves	7	10	10	27
Commercial Motor Vehicle	8	6	11	25
Young Drivers - 15-20	13	3	2	18
Aggressive Driving-Speed Exceeded Limit	8	4	5	17
Unlicensed / Improperly Licensed Drivers	8	2	6	16
Distracted / Inattentive Drivers	7	2	5	14
Distracted / Inattention	7	2	5	14
Motorcyclists Killed	7	2	5	14
Older Drivers - 65-75	6	2	6	14
Unsignalized Intersection Crashes	6	3	5	14
Older Drivers - 76 or Older	1	5	5	11
Head-On Crashes (Non-Interstates)	2	1	7	10
Collision with Tree	5	1	1	7
Collision with Utility Pole	1	3	1	5
Pedestrians Killed	2	1	1	4
Signalized Intersection Crashes	0	1	1	2
Aggressive Driving-Following Too Close	0	1	0	1
Head-On Crashes (Interstates)	0	0	1	1
Work Zones	0	0	1	1
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0

##### Serious Injuries Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	153	131	140	424
Unrestrained Occupants Seriously Injured	100	107	113	320
Young Drivers - 15-20	87	94	84	265
Aggressive Driving-Too Fast for Conditions	68	69	61	198
Unsignalized Intersection Crashes	69	65	60	194
Horizontal Curves	51	65	75	191
Alcohol and - or Other Drugs	53	37	53	143
Distracted / Inattention	59	34	42	135
Distracted / Inattentive Drivers	57	33	42	132
Unlicensed / Improperly Licensed Drivers	52	38	42	132
Motorcyclists Seriously Injured	43	40	26	109
Aggressive Driving-Following Too Close	38	31	30	99
Older Drivers - 65-75	41	18	34	93
Signalized Intersection Crashes	26	32	32	90
Commercial Motor Vehicle	25	33	21	79
Head-On Crashes (Non-Interstates)	29	16	28	73
Collision with Tree	25	20	20	65
Older Drivers - 76 or Older	19	23	17	59
Aggressive Driving-Speed Exceeded Limit	21	22	14	57
Collision with Utility Pole	17	11	8	36
Pedestrians Seriously Injured	11	12	6	29
Bicyclists Seriously Injured	4	2	0	6
Work Zones	0	1	4	5
Head-On Crashes (Interstates)	0	0	1	1
School Buses/Bus Signal	1	0	0	1

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol. This publication is possible only through the conscientious reporting efforts of Missouri law-enforcement agencies. These statistics are compiled pursuant to federal law, 23 USC Section 152.

## Appendix A

**Region NORTHEAST****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****NORTHEAST vs. STATE****Total Fatalities**

Year	NORTHEAST	State	%
2012	58	826	7.02%
2013	51	757	6.74%
2014	45	766	5.87%
<b>Total</b>	<b>154</b>	<b>2,349</b>	<b>6.56%</b>

**Total Serious Injuries**

Year	NORTHEAST	State	%
2012	388	5,506	7.05%
2013	304	4,938	6.16%
2014	355	4,657	7.62%
<b>Total</b>	<b>1,047</b>	<b>15,101</b>	<b>6.93%</b>

**NORTHEAST****Fatalities Involving**

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	33	21	21	75
Run-off-Road Crashes	28	25	17	70
Horizontal Curves	14	19	20	53
Aggressive Driving-Too Fast for Conditions	17	14	12	43
Alcohol and - or Other Drugs	20	13	10	43
Commercial Motor Vehicle	11	8	10	29
Unsignalized Intersection Crashes	9	10	9	28
Young Drivers - 15-20	9	10	8	27
Collision with Tree	10	8	8	26
Head-On Crashes (Non-Interstates)	8	9	9	26
Unlicensed / Improperly Licensed Drivers	6	8	12	26
Older Drivers - 65-75	8	7	10	25
Aggressive Driving-Speed Exceeded Limit	5	7	5	17
Older Drivers - 76 or Older	5	5	6	16
Distracted / Inattentive Drivers	4	5	3	12
Distraction / Inattention	4	5	3	12
Motorcyclists Killed	4	6	0	10
Pedestrians Killed	4	3	3	10
Collision with Utility Pole	3	1	0	4
Aggressive Driving-Following Too Close	0	0	1	1
Head-On Crashes (Interstates)	1	0	0	1
Work Zones	1	0	0	1
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0
Signalized Intersection Crashes	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	209	142	168	519
Unrestrained Occupants Seriously Injured	133	102	102	337
Aggressive Driving-Too Fast for Conditions	97	76	101	274
Young Drivers - 15-20	97	71	93	261
Horizontal Curves	90	82	87	259
Alcohol and - or Other Drugs	100	52	58	210
Unsignalized Intersection Crashes	72	59	54	185
Distraction / Inattention	52	50	57	159
Distracted / Inattentive Drivers	52	48	56	156
Unlicensed / Improperly Licensed Drivers	61	32	48	141
Collision with Tree	45	32	38	115
Older Drivers - 65-75	45	44	21	110
Motorcyclists Seriously Injured	48	27	33	108
Commercial Motor Vehicle	33	36	34	103
Head-On Crashes (Non-Interstates)	33	32	33	98
Aggressive Driving-Speed Exceeded Limit	25	17	23	65
Older Drivers - 76 or Older	18	18	19	55
Aggressive Driving-Following Too Close	14	6	18	38
Collision with Utility Pole	16	5	5	26
Signalized Intersection Crashes	7	5	14	26
Pedestrians Seriously Injured	11	4	10	25
Bicyclists Seriously Injured	5	4	2	11
Work Zones	6	0	4	10
School Buses/Bus Signal	0	0	8	8
Head-On Crashes (Interstates)	1	0	0	1

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**Region KANSAS CITY****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****KANSAS CITY vs. STATE****Total Fatalities**

Year	KANSAS CITY	State	%
2012	161	826	19.49%
2013	148	757	19.55%
2014	128	766	16.71%
<b>Total</b>	<b>437</b>	<b>2,349</b>	<b>18.60%</b>

**Total Serious Injuries**

Year	KANSAS CITY	State	%
2012	1,016	5,506	18.45%
2013	1,023	4,938	20.72%
2014	897	4,657	19.26%
<b>Total</b>	<b>2,936</b>	<b>15,101</b>	<b>19.44%</b>

**KANSAS CITY****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	71	72	51	194
Unrestrained Occupants Killed	68	61	46	175
Alcohol and - or Other Drugs	41	49	34	124
Horizontal Curves	46	42	19	107
Unlicensed / Improperly Licensed Drivers	37	32	38	107
Aggressive Driving-Speed Exceeded Limit	37	30	21	88
Aggressive Driving-Too Fast for Conditions	27	36	17	80
Commercial Motor Vehicle	21	25	23	69
Pedestrians Killed	25	19	17	61
Collision with Tree	19	23	16	58
Young Drivers - 15-20	22	20	16	58
Motorcyclists Killed	23	18	16	57
Unsignalized Intersection Crashes	21	12	14	47
Distraction / Inattention	15	19	10	44
Older Drivers - 65-75	16	13	11	40
Distracted / Inattentive Drivers	13	17	9	39
Older Drivers - 76 or Older	8	14	7	29
Head-On Crashes (Non-Interstates)	11	7	10	28
Signalized Intersection Crashes	10	9	9	28
Collision with Utility Pole	3	10	4	17
Head-On Crashes (Interstates)	5	1	4	10
Aggressive Driving-Following Too Close	5	1	3	9
Work Zones	2	2	1	5
Bicyclists Killed	1	1	2	4
School Buses/Bus Signal	0	2	1	3

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	280	330	300	910
Young Drivers - 15-20	256	201	162	619
Unsignalized Intersection Crashes	216	193	183	592
Unrestrained Occupants Seriously Injured	188	184	177	549
Horizontal Curves	170	182	183	535
Aggressive Driving-Too Fast for Conditions	166	186	163	515
Unlicensed / Improperly Licensed Drivers	183	178	149	510
Distraction / Inattention	182	158	157	497
Distracted / Inattentive Drivers	173	152	153	478
Signalized Intersection Crashes	137	151	120	408
Alcohol and - or Other Drugs	133	142	114	389
Motorcyclists Seriously Injured	146	112	108	366
Aggressive Driving-Speed Exceeded Limit	112	103	86	301
Aggressive Driving-Following Too Close	99	102	97	298
Older Drivers - 65-75	89	104	99	292
Head-On Crashes (Non-Interstates)	94	73	72	239
Collision with Tree	63	78	63	204
Commercial Motor Vehicle	55	77	69	201
Pedestrians Seriously Injured	46	71	53	170
Older Drivers - 76 or Older	50	48	50	148
Collision with Utility Pole	37	41	36	114
Bicyclists Seriously Injured	18	13	12	43
Work Zones	17	14	12	43
Head-On Crashes (Interstates)	10	2	5	17
School Buses/Bus Signal	2	1	1	4

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol.

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## Appendix A

### Region CENTRAL

#### Total Fatalities and Serious Injuries by Target Area 2012 - 2014

##### CENTRAL vs. STATE

###### Total Fatalities

Year	CENTRAL	State	%
2012	123	826	14.89%
2013	97	757	12.81%
2014	118	766	15.40%
<b>Total</b>	<b>338</b>	<b>2,349</b>	<b>14.39%</b>

###### Total Serious Injuries

Year	CENTRAL	State	%
2012	804	5,506	14.60%
2013	638	4,938	12.92%
2014	600	4,657	12.88%
<b>Total</b>	<b>2,042</b>	<b>15,101</b>	<b>13.52%</b>

##### CENTRAL

###### Fatalities Involving

Description	2012	2013	2014	Total
Horizontal Curves	67	64	54	185
Run-off-Road Crashes	62	52	55	169
Unrestrained Occupants Killed	70	49	49	168
Alcohol and - or Other Drugs	46	44	42	132
Aggressive Driving-Too Fast for Conditions	33	26	24	83
Collision with Tree	26	24	23	73
Head-On Crashes (Non-Interstates)	16	16	26	58
Unlicensed / Improperly Licensed Drivers	23	13	22	58
Commercial Motor Vehicle	17	13	21	51
Aggressive Driving-Speed Exceeded Limit	24	11	14	49
Young Drivers - 15-20	19	15	11	45
Motorcyclists Killed	12	12	13	37
Older Drivers - 76 or Older	14	6	11	31
Distraction / Inattention	16	10	4	30
Distracted / Inattentive Drivers	16	10	3	29
Older Drivers - 65-75	10	7	11	28
Unsignalized Intersection Crashes	6	4	9	19
Pedestrians Killed	5	2	8	15
Collision with Utility Pole	1	6	6	13
Aggressive Driving-Following Too Close	3	0	3	6
Signalized Intersection Crashes	2	0	2	4
Head-On Crashes (Interstates)	3	0	0	3
Work Zones	1	0	2	3
Bicyclists Killed	0	1	1	2
School Buses/Bus Signal	0	0	1	1

###### Serious Injuries Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	381	321	285	987
Horizontal Curves	317	242	224	783
Unrestrained Occupants Seriously Injured	226	176	180	582
Aggressive Driving-Too Fast for Conditions	213	177	166	556
Young Drivers - 15-20	192	151	118	461
Alcohol and - or Other Drugs	142	112	113	367
Collision with Tree	128	108	113	349
Distraction / Inattention	115	85	83	283
Unsignalized Intersection Crashes	112	90	79	281
Distracted / Inattentive Drivers	111	78	80	269
Unlicensed / Improperly Licensed Drivers	106	69	81	256
Motorcyclists Seriously Injured	84	76	76	236
Head-On Crashes (Non-Interstates)	81	54	83	218
Older Drivers - 65-75	77	66	65	208
Commercial Motor Vehicle	57	53	50	160
Aggressive Driving-Speed Exceeded Limit	55	30	39	124
Aggressive Driving-Following Too Close	44	46	30	120
Older Drivers - 76 or Older	40	31	29	100
Signalized Intersection Crashes	25	27	28	80
Pedestrians Seriously Injured	18	23	23	64
Collision with Utility Pole	20	14	15	49
Work Zones	8	2	7	17
Bicyclists Seriously Injured	5	3	6	14
School Buses/Bus Signal	6	6	1	13
Head-On Crashes (Interstates)	5	0	0	5

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol. This publication is possible only through the conscientious reporting efforts of Missouri law-enforcement agencies. These statistics are compiled pursuant to federal law, 23 USC Section 152.

# Appendix A

## Region ST. LOUIS

### Total Fatalities and Serious Injuries by Target Area 2012 - 2014

#### ST. LOUIS vs. STATE

##### Total Fatalities

Year	ST. LOUIS	State	%
2012	171	826	20.70%
2013	157	757	20.74%
2014	173	766	22.58%
<b>Total</b>	<b>501</b>	<b>2,349</b>	<b>21.33%</b>

##### Total Serious Injuries

Year	ST. LOUIS	State	%
2012	1,343	5,506	24.39%
2013	1,225	4,938	24.81%
2014	1,115	4,657	23.94%
<b>Total</b>	<b>3,683</b>	<b>15,101</b>	<b>24.39%</b>

#### ST. LOUIS

##### Fatalities Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	82	58	74	214
Unrestrained Occupants Killed	66	54	61	181
Horizontal Curves	58	39	58	155
Alcohol and - or Other Drugs	40	46	46	132
Aggressive Driving-Speed Exceeded Limit	42	38	50	130
Aggressive Driving-Too Fast for Conditions	38	33	39	110
Unlicensed / Improperly Licensed Drivers	34	33	35	102
Collision with Tree	23	26	35	84
Pedestrians Killed	25	31	24	80
Young Drivers - 15-20	30	18	32	80
Motorcyclists Killed	25	14	25	64
Commercial Motor Vehicle	24	18	20	62
Older Drivers - 65-75	18	23	21	62
Distraction / Inattention	22	20	16	58
Unsignalized Intersection Crashes	20	17	21	58
Head-On Crashes (Non-Interstates)	13	23	18	54
Distracted / Inattentive Drivers	20	13	13	46
Signalized Intersection Crashes	13	12	13	38
Older Drivers - 76 or Older	9	11	15	35
Collision with Utility Pole	10	7	7	24
Aggressive Driving-Following Too Close	4	2	3	9
Head-On Crashes (Interstates)	0	6	3	9
Work Zones	4	4	1	9
Bicyclists Killed	2	1	1	4
School Buses/Bus Signal	1	0	2	3

##### Serious Injuries Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	466	362	393	1,221
Horizontal Curves	326	245	257	828
Aggressive Driving-Too Fast for Conditions	282	224	232	738
Young Drivers - 15-20	250	252	196	698
Unrestrained Occupants Seriously Injured	245	222	197	664
Unlicensed / Improperly Licensed Drivers	233	193	223	649
Unsignalized Intersection Crashes	219	209	203	631
Distraction / Inattention	209	204	197	610
Distracted / Inattentive Drivers	197	188	180	565
Alcohol and - or Other Drugs	194	170	163	527
Signalized Intersection Crashes	165	177	134	476
Motorcyclists Seriously Injured	172	144	130	446
Aggressive Driving-Speed Exceeded Limit	134	140	121	395
Older Drivers - 65-75	115	111	134	360
Collision with Tree	133	98	101	332
Pedestrians Seriously Injured	99	116	109	324
Head-On Crashes (Non-Interstates)	103	108	106	317
Commercial Motor Vehicle	94	97	85	276
Aggressive Driving-Following Too Close	73	99	63	235
Older Drivers - 76 or Older	67	60	55	182
Collision with Utility Pole	44	41	51	136
Bicyclists Seriously Injured	27	31	12	70
Work Zones	23	9	18	50
Head-On Crashes (Interstates)	10	9	4	23
School Buses/Bus Signal	3	9	1	13

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**Region SOUTHWEST****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****SOUTHWEST vs. STATE****Total Fatalities**

Year	SOUTHWEST	State	%
2012	143	826	17.31%
2013	149	757	19.68%
2014	144	766	18.80%
<b>Total</b>	<b>436</b>	<b>2,349</b>	<b>18.56%</b>

**Total Serious Injuries**

Year	SOUTHWEST	State	%
2012	937	5,506	17.02%
2013	881	4,938	17.84%
2014	872	4,657	18.72%
<b>Total</b>	<b>2,690</b>	<b>15,101</b>	<b>17.81%</b>

**SOUTHWEST****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	63	76	72	211
Unrestrained Occupants Killed	65	73	67	205
Horizontal Curves	41	46	42	129
Alcohol and - or Other Drugs	42	37	33	112
Aggressive Driving-Too Fast for Conditions	34	42	34	110
Young Drivers - 15-20	30	27	31	88
Collision with Tree	19	35	31	85
Older Drivers - 65-75	16	24	31	71
Unlicensed / Improperly Licensed Drivers	23	30	18	71
Unsignalized Intersection Crashes	31	19	17	67
Head-On Crashes (Non-Interstates)	20	24	19	63
Aggressive Driving-Speed Exceeded Limit	16	23	18	57
Motorcyclists Killed	20	14	17	51
Distraction / Inattention	20	13	14	47
Distracted / Inattentive Drivers	17	12	12	41
Commercial Motor Vehicle	16	15	9	40
Older Drivers - 76 or Older	9	15	14	38
Pedestrians Killed	19	7	12	38
Collision with Utility Pole	3	5	4	12
Signalized Intersection Crashes	4	2	3	9
Aggressive Driving-Following Too Close	2	2	3	7
Head-On Crashes (Interstates)	0	2	2	4
Bicyclists Killed	1	1	0	2
School Buses/Bus Signal	1	1	0	2
Work Zones	0	1	1	2

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	431	398	384	1,213
Horizontal Curves	276	241	265	782
Unrestrained Occupants Seriously Injured	296	228	238	762
Aggressive Driving-Too Fast for Conditions	260	216	251	727
Young Drivers - 15-20	233	179	177	589
Unsignalized Intersection Crashes	164	141	157	462
Alcohol and - or Other Drugs	163	151	146	460
Distraction / Inattention	158	153	142	453
Unlicensed / Improperly Licensed Drivers	150	157	144	451
Distracted / Inattentive Drivers	153	144	132	429
Motorcyclists Seriously Injured	130	125	127	382
Collision with Tree	126	122	110	358
Older Drivers - 65-75	85	88	93	266
Head-On Crashes (Non-Interstates)	81	84	81	246
Commercial Motor Vehicle	90	60	69	219
Aggressive Driving-Speed Exceeded Limit	49	67	60	176
Aggressive Driving-Following Too Close	51	71	50	172
Older Drivers - 76 or Older	40	47	48	135
Signalized Intersection Crashes	38	55	35	128
Pedestrians Seriously Injured	31	35	30	96
Collision with Utility Pole	29	34	30	93
Bicyclists Seriously Injured	10	11	13	34
Work Zones	17	5	3	25
Head-On Crashes (Interstates)	0	5	2	7
School Buses/Bus Signal	2	3	2	7

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**Region SOUTHEAST****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****SOUTHEAST vs. STATE****Total Fatalities**

Year	SOUTHEAST	State	%
2012	124	826	15.01%
2013	123	757	16.25%
2014	122	766	15.93%
<b>Total</b>	<b>369</b>	<b>2,349</b>	<b>15.71%</b>

**Total Serious Injuries**

Year	SOUTHEAST	State	%
2012	653	5,506	11.86%
2013	545	4,938	11.04%
2014	505	4,657	10.84%
<b>Total</b>	<b>1,703</b>	<b>15,101</b>	<b>11.28%</b>

**SOUTHEAST****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	69	65	66	200
Unrestrained Occupants Killed	66	62	68	196
Horizontal Curves	46	43	53	142
Alcohol and - or Other Drugs	40	37	32	109
Aggressive Driving-Too Fast for Conditions	41	31	32	104
Collision with Tree	29	24	29	82
Unlicensed / Improperly Licensed Drivers	22	17	28	67
Head-On Crashes (Non-Interstates)	16	17	20	53
Young Drivers - 15-20	12	27	14	53
Commercial Motor Vehicle	16	14	17	47
Distraction / Inattention	8	16	16	40
Older Drivers - 65-75	12	16	12	40
Distracted / Inattentive Drivers	8	15	16	39
Aggressive Driving-Speed Exceeded Limit	11	8	18	37
Older Drivers - 76 or Older	14	11	11	36
Unsignalized Intersection Crashes	11	11	8	30
Motorcyclists Killed	11	6	11	28
Pedestrians Killed	6	12	4	22
Collision with Utility Pole	4	5	2	11
Aggressive Driving-Following Too Close	2	3	4	9
Work Zones	1	2	2	5
Bicyclists Killed	2	0	0	2
Signalized Intersection Crashes	2	0	0	2
Head-On Crashes (Interstates)	1	0	0	1
School Buses/Bus Signal	1	0	0	1

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	361	298	266	925
Unrestrained Occupants Seriously Injured	261	221	168	650
Horizontal Curves	254	188	173	615
Aggressive Driving-Too Fast for Conditions	194	138	128	460
Alcohol and - or Other Drugs	127	123	102	352
Young Drivers - 15-20	146	102	102	350
Collision with Tree	114	102	98	314
Unlicensed / Improperly Licensed Drivers	94	76	85	255
Distraction / Inattention	85	83	70	238
Distracted / Inattentive Drivers	82	79	68	229
Unsignalized Intersection Crashes	83	71	75	229
Older Drivers - 65-75	60	53	65	178
Head-On Crashes (Non-Interstates)	58	60	47	165
Motorcyclists Seriously Injured	65	31	45	141
Commercial Motor Vehicle	35	46	43	124
Older Drivers - 76 or Older	50	22	23	95
Aggressive Driving-Speed Exceeded Limit	34	31	16	81
Aggressive Driving-Following Too Close	26	23	14	63
Pedestrians Seriously Injured	13	15	21	49
Collision with Utility Pole	15	13	16	44
Signalized Intersection Crashes	7	7	5	19
Bicyclists Seriously Injured	4	2	6	12
Work Zones	2	3	7	12
Head-On Crashes (Interstates)	1	0	5	6
School Buses/Bus Signal	1	0	1	2

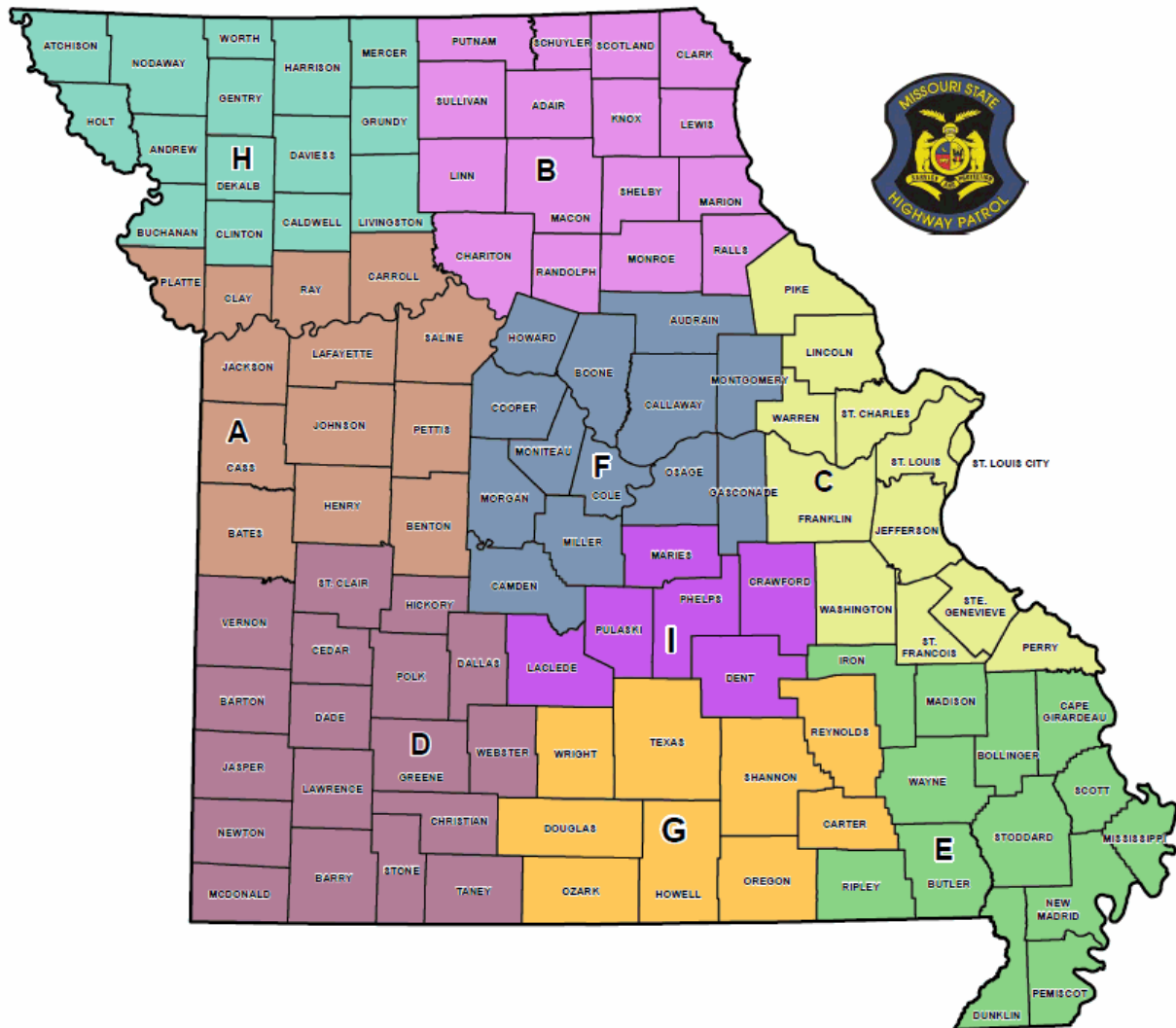
Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol.

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Appendix B

## Missouri State Highway Patrol Troops



**Troop A****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****Hfccd'A vs STATE****Total Fatalities**

Year	A	State	%
2012	172	826	20.82%
2013	157	757	20.74%
2014	141	766	18.41%
<b>Total</b>	<b>470</b>	<b>2,349</b>	<b>20.01%</b>

**Total Serious Injuries**

Year	A	State	%
2012	1,100	5,506	19.98%
2013	1,094	4,938	22.15%
2014	966	4,657	20.74%
<b>Total</b>	<b>3,160</b>	<b>15,101</b>	<b>20.93%</b>

**Hfccd'A****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	76	77	58	211
Unrestrained Occupants Killed	75	64	47	186
Alcohol and - or Other Drugs	44	50	38	132
Horizontal Curves	50	48	25	123
Unlicensed / Improperly Licensed Drivers	40	33	40	113
Aggressive Driving-Speed Exceeded Limit	37	31	23	91
Aggressive Driving-Too Fast for Conditions	31	39	20	90
Commercial Motor Vehicle	21	25	24	70
Collision with Tree	20	25	23	68
Young Drivers - 15-20	26	20	21	67
Pedestrians Killed	26	20	18	64
Motorcyclists Killed	25	20	16	61
Unsignalized Intersection Crashes	23	16	14	53
Older Drivers - 65-75	16	15	17	48
Distraction / Inattention	17	19	10	46
Distracted / Inattentive Drivers	15	17	9	41
Head-On Crashes (Non-Interstates)	12	8	12	32
Older Drivers - 76 or Older	9	16	7	32
Signalized Intersection Crashes	10	9	9	28
Collision with Utility Pole	3	10	4	17
Head-On Crashes (Interstates)	5	1	4	10
Aggressive Driving-Following Too Close	5	1	3	9
Work Zones	2	2	1	5
Bicyclists Killed	1	1	2	4
School Buses/Bus Signal	0	2	1	3

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	330	377	350	1,057
Young Drivers - 15-20	287	214	178	679
Unrestrained Occupants Seriously Injured	225	217	209	651
Unsignalized Intersection Crashes	225	197	187	609
Horizontal Curves	200	198	203	601
Aggressive Driving-Too Fast for Conditions	188	209	188	585
Unlicensed / Improperly Licensed Drivers	194	192	158	544
Distraction / Inattention	195	171	164	530
Distracted / Inattentive Drivers	186	165	160	511
Alcohol and - or Other Drugs	150	156	128	434
Signalized Intersection Crashes	138	153	120	411
Motorcyclists Seriously Injured	162	121	115	398
Older Drivers - 65-75	101	114	106	321
Aggressive Driving-Speed Exceeded Limit	116	104	92	312
Aggressive Driving-Following Too Close	100	102	99	301
Head-On Crashes (Non-Interstates)	99	79	78	256
Collision with Tree	71	81	80	232
Commercial Motor Vehicle	62	79	73	214
Pedestrians Seriously Injured	47	71	55	173
Older Drivers - 76 or Older	53	50	51	154
Collision with Utility Pole	38	43	39	120
Work Zones	23	14	13	50
Bicyclists Seriously Injured	18	13	12	43
Head-On Crashes (Interstates)	10	2	5	17
School Buses/Bus Signal	2	1	1	4

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol.

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**Troop B****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****Hfcd'B vs STATE****Total Fatalities**

Year	B	State	%
2012	38	826	4.60%
2013	26	757	3.43%
2014	24	766	3.13%
<b>Total</b>	<b>88</b>	<b>2,349</b>	<b>3.75%</b>

**Total Serious Injuries**

Year	B	State	%
2012	262	5,506	4.76%
2013	170	4,938	3.44%
2014	238	4,657	5.11%
<b>Total</b>	<b>670</b>	<b>15,101</b>	<b>4.44%</b>

**Hfcd'B****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	18	16	11	45
Unrestrained Occupants Killed	20	14	9	43
Horizontal Curves	7	9	8	24
Alcohol and - or Other Drugs	7	9	3	19
Unsignalized Intersection Crashes	8	5	6	19
Commercial Motor Vehicle	10	4	3	17
Aggressive Driving-Too Fast for Conditions	8	7	1	16
Collision with Tree	6	3	5	14
Older Drivers - 65-75	7	2	4	13
Older Drivers - 76 or Older	5	4	3	12
Young Drivers - 15-20	6	5	1	12
Distracted / Inattentive Drivers	5	2	2	9
Distraction / Inattention	5	2	2	9
Aggressive Driving-Speed Exceeded Limit	1	3	4	8
Head-On Crashes (Non-Interstates)	3	3	2	8
Pedestrians Killed	3	0	3	6
Motorcyclists Killed	3	2	0	5
Unlicensed / Improperly Licensed Drivers	1	3	1	5
Collision with Utility Pole	2	1	1	4
Work Zones	1	0	0	1
Aggressive Driving-Following Too Close	0	0	0	0
Bicyclists Killed	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
School Buses/Bus Signal	0	0	0	0
Signalized Intersection Crashes	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	142	88	114	344
Unrestrained Occupants Seriously Injured	93	59	66	218
Young Drivers - 15-20	72	55	72	199
Aggressive Driving-Too Fast for Conditions	69	45	58	172
Horizontal Curves	51	46	52	149
Alcohol and - or Other Drugs	54	32	42	128
Unsignalized Intersection Crashes	49	28	34	111
Distraction / Inattention	42	25	34	101
Distracted / Inattentive Drivers	42	25	33	100
Unlicensed / Improperly Licensed Drivers	34	22	24	80
Motorcyclists Seriously Injured	32	14	20	66
Head-On Crashes (Non-Interstates)	18	14	32	64
Older Drivers - 65-75	30	21	13	64
Commercial Motor Vehicle	26	14	22	62
Collision with Tree	21	18	21	60
Aggressive Driving-Speed Exceeded Limit	17	9	10	36
Aggressive Driving-Following Too Close	13	5	12	30
Older Drivers - 76 or Older	9	9	10	28
Signalized Intersection Crashes	6	4	10	20
Collision with Utility Pole	12	2	1	15
Pedestrians Seriously Injured	6	2	6	14
School Buses/Bus Signal	1	0	8	9
Bicyclists Seriously Injured	5	1	1	7
Work Zones	5	0	0	5
Head-On Crashes (Interstates)	0	0	0	0

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol.

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**Troop C****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****Hfcd'C vs STATE****Total Fatalities**

Year	C	State	%
2012	216	826	26.15%
2013	216	757	28.53%
2014	223	766	29.11%
<b>Total</b>	<b>655</b>	<b>2,349</b>	<b>27.88%</b>

**Total Serious Injuries**

Year	C	State	%
2012	1,572	5,506	28.55%
2013	1,427	4,938	28.90%
2014	1,362	4,657	29.25%
<b>Total</b>	<b>4,361</b>	<b>15,101</b>	<b>28.88%</b>

**Hfcd'C****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	110	83	98	291
Unrestrained Occupants Killed	93	78	90	261
Horizontal Curves	80	68	82	230
Alcohol and - or Other Drugs	61	66	60	187
Aggressive Driving-Too Fast for Conditions	53	51	51	155
Aggressive Driving-Speed Exceeded Limit	49	44	60	153
Unlicensed / Improperly Licensed Drivers	45	43	45	133
Collision with Tree	33	39	49	121
Young Drivers - 15-20	35	27	36	98
Pedestrians Killed	29	38	24	91
Commercial Motor Vehicle	28	24	31	83
Head-On Crashes (Non-Interstates)	19	32	32	83
Distraction / Inattention	26	35	21	82
Older Drivers - 65-75	20	31	28	79
Motorcyclists Killed	28	19	27	74
Unsignalized Intersection Crashes	23	23	27	73
Distracted / Inattentive Drivers	24	28	18	70
Older Drivers - 76 or Older	10	13	20	43
Signalized Intersection Crashes	14	12	13	39
Collision with Utility Pole	11	9	7	27
Aggressive Driving-Following Too Close	5	3	4	12
Work Zones	5	4	2	11
Head-On Crashes (Interstates)	1	6	3	10
Bicyclists Killed	3	1	1	5
School Buses/Bus Signal	1	0	2	3

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	596	471	517	1,584
Horizontal Curves	405	324	349	1,078
Aggressive Driving-Too Fast for Conditions	343	267	308	918
Unrestrained Occupants Seriously Injured	324	296	284	904
Young Drivers - 15-20	295	294	243	832
Unlicensed / Improperly Licensed Drivers	270	212	259	741
Distraction / Inattention	241	245	253	739
Unsignalized Intersection Crashes	256	243	235	734
Distracted / Inattentive Drivers	229	227	235	691
Alcohol and - or Other Drugs	255	211	206	672
Motorcyclists Seriously Injured	198	165	157	520
Signalized Intersection Crashes	166	180	138	484
Collision with Tree	169	136	144	449
Aggressive Driving-Speed Exceeded Limit	145	155	141	441
Older Drivers - 65-75	140	141	154	435
Head-On Crashes (Non-Interstates)	121	124	131	376
Pedestrians Seriously Injured	107	121	118	346
Commercial Motor Vehicle	108	117	101	326
Aggressive Driving-Following Too Close	80	102	67	249
Older Drivers - 76 or Older	79	68	70	217
Collision with Utility Pole	53	45	59	157
Bicyclists Seriously Injured	30	32	16	78
Work Zones	25	9	25	59
Head-On Crashes (Interstates)	11	9	4	24
School Buses/Bus Signal	6	9	2	17

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol.

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**Troop D****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****Hfccd'D vs STATE****Total Fatalities**

Year	D	State	%
2012	133	826	16.10%
2013	141	757	18.63%
2014	132	766	17.23%
<b>Total</b>	<b>406</b>	<b>2,349</b>	<b>17.28%</b>

**Total Serious Injuries**

Year	D	State	%
2012	860	5,506	15.62%
2013	815	4,938	16.50%
2014	808	4,657	17.35%
<b>Total</b>	<b>2,483</b>	<b>15,101</b>	<b>16.44%</b>

**Hfccd'D****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	58	72	66	196
Unrestrained Occupants Killed	59	71	66	196
Horizontal Curves	37	41	36	114
Alcohol and - or Other Drugs	39	36	29	104
Aggressive Driving-Too Fast for Conditions	31	40	31	102
Young Drivers - 15-20	27	27	26	80
Collision with Tree	18	33	24	75
Unlicensed / Improperly Licensed Drivers	20	29	16	65
Older Drivers - 65-75	16	22	26	64
Unsignalized Intersection Crashes	29	15	17	61
Head-On Crashes (Non-Interstates)	20	23	17	60
Aggressive Driving-Speed Exceeded Limit	16	22	16	54
Motorcyclists Killed	18	12	17	47
Distraction / Inattention	18	13	14	45
Commercial Motor Vehicle	16	15	8	39
Distracted / Inattentive Drivers	15	12	12	39
Older Drivers - 76 or Older	8	13	14	35
Pedestrians Killed	18	6	11	35
Collision with Utility Pole	3	5	4	12
Signalized Intersection Crashes	4	2	3	9
Aggressive Driving-Following Too Close	2	2	3	7
Head-On Crashes (Interstates)	0	2	2	4
Bicyclists Killed	1	1	0	2
School Buses/Bus Signal	1	1	0	2
Work Zones	0	1	1	2

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	382	355	338	1,075
Horizontal Curves	248	225	246	719
Unrestrained Occupants Seriously Injured	264	198	210	672
Aggressive Driving-Too Fast for Conditions	238	195	226	659
Young Drivers - 15-20	204	166	162	532
Unsignalized Intersection Crashes	157	137	153	447
Distraction / Inattention	146	142	136	424
Alcohol and - or Other Drugs	149	140	134	423
Unlicensed / Improperly Licensed Drivers	139	143	135	417
Distracted / Inattentive Drivers	141	133	126	400
Motorcyclists Seriously Injured	114	116	120	350
Collision with Tree	118	120	93	331
Older Drivers - 65-75	73	78	86	237
Head-On Crashes (Non-Interstates)	79	78	76	233
Commercial Motor Vehicle	86	59	65	210
Aggressive Driving-Following Too Close	50	71	49	170
Aggressive Driving-Speed Exceeded Limit	45	66	54	165
Older Drivers - 76 or Older	38	45	47	130
Signalized Intersection Crashes	37	53	35	125
Pedestrians Seriously Injured	31	35	28	94
Collision with Utility Pole	28	32	28	88
Bicyclists Seriously Injured	10	11	13	34
Work Zones	11	5	2	18
Head-On Crashes (Interstates)	0	5	2	7
School Buses/Bus Signal	2	3	2	7

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**Troop E****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****Hfcd'E vs STATE****Total Fatalities**

Year	E	State	%
2012	65	826	7.87%
2013	67	757	8.85%
2014	62	766	8.09%
<b>Total</b>	<b>194</b>	<b>2,349</b>	<b>8.26%</b>

**Total Serious Injuries**

Year	E	State	%
2012	352	5,506	6.39%
2013	281	4,938	5.69%
2014	269	4,657	5.78%
<b>Total</b>	<b>902</b>	<b>15,101</b>	<b>5.97%</b>

**Hfcd'E****Fatalities Involving**

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	31	37	38	106
Run-off-Road Crashes	38	32	35	105
Alcohol and - or Other Drugs	22	18	20	60
Horizontal Curves	20	17	22	59
Aggressive Driving-Too Fast for Conditions	19	13	17	49
Collision with Tree	14	11	13	38
Unlicensed / Improperly Licensed Drivers	10	8	14	32
Young Drivers - 15-20	6	17	8	31
Head-On Crashes (Non-Interstates)	8	12	8	28
Older Drivers - 65-75	8	11	7	26
Aggressive Driving-Speed Exceeded Limit	10	5	6	21
Older Drivers - 76 or Older	4	8	7	19
Commercial Motor Vehicle	4	7	5	16
Distracted / Inattentive Drivers	4	5	6	15
Distracted / Inattention	4	5	6	15
Motorcyclists Killed	6	3	4	13
Unsignalized Intersection Crashes	4	7	1	12
Pedestrians Killed	3	5	3	11
Collision with Utility Pole	3	2	2	7
Aggressive Driving-Following Too Close	1	2	2	5
Work Zones	0	1	1	2
Bicyclists Killed	1	0	0	1
Signalized Intersection Crashes	1	0	0	1
Head-On Crashes (Interstates)	0	0	0	0
School Buses/Bus Signal	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	196	139	138	473
Unrestrained Occupants Seriously Injured	148	120	93	361
Horizontal Curves	112	71	73	256
Aggressive Driving-Too Fast for Conditions	100	63	52	215
Alcohol and - or Other Drugs	70	71	57	198
Young Drivers - 15-20	78	46	52	176
Unlicensed / Improperly Licensed Drivers	48	41	55	144
Collision with Tree	52	36	50	138
Unsignalized Intersection Crashes	41	38	48	127
Distracted / Inattention	43	43	27	113
Distracted / Inattentive Drivers	41	41	26	108
Older Drivers - 65-75	31	31	33	95
Head-On Crashes (Non-Interstates)	28	38	23	89
Commercial Motor Vehicle	20	26	28	74
Motorcyclists Seriously Injured	30	13	22	65
Older Drivers - 76 or Older	20	11	15	46
Aggressive Driving-Following Too Close	15	19	11	45
Aggressive Driving-Speed Exceeded Limit	15	22	5	42
Pedestrians Seriously Injured	8	10	15	33
Collision with Utility Pole	7	9	12	28
Signalized Intersection Crashes	5	4	4	13
Bicyclists Seriously Injured	2	2	3	7
Work Zones	0	3	3	6
Head-On Crashes (Interstates)	0	0	5	5
School Buses/Bus Signal	0	0	0	0

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**Troop F****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****Hfccd'F vs STATE****Total Fatalities**

Year	F	State	%
2012	76	826	9.20%
2013	60	757	7.93%
2014	86	766	11.23%
<b>Total</b>	<b>222</b>	<b>2,349</b>	<b>9.45%</b>

**Total Serious Injuries**

Year	F	State	%
2012	506	5,506	9.19%
2013	423	4,938	8.57%
2014	397	4,657	8.52%
<b>Total</b>	<b>1,326</b>	<b>15,101</b>	<b>8.78%</b>

**Hfccd'F****Fatalities Involving**

Description	2012	2013	2014	Total
Horizontal Curves	37	40	37	114
Unrestrained Occupants Killed	41	31	34	106
Run-off-Road Crashes	31	33	35	99
Alcohol and - or Other Drugs	28	28	31	87
Head-On Crashes (Non-Interstates)	14	13	21	48
Aggressive Driving-Too Fast for Conditions	16	15	16	47
Commercial Motor Vehicle	14	10	19	43
Unlicensed / Improperly Licensed Drivers	13	7	20	40
Collision with Tree	12	14	13	39
Young Drivers - 15-20	13	11	10	34
Aggressive Driving-Speed Exceeded Limit	8	9	8	25
Motorcyclists Killed	6	10	7	23
Older Drivers - 76 or Older	9	4	10	23
Older Drivers - 65-75	7	3	10	20
Unsignalized Intersection Crashes	5	3	9	17
Distracted / Inattentive Drivers	9	4	2	15
Distraction / Inattention	9	4	2	15
Pedestrians Killed	3	1	6	10
Collision with Utility Pole	0	4	5	9
Aggressive Driving-Following Too Close	2	0	3	5
Signalized Intersection Crashes	2	0	2	4
Work Zones	1	0	2	3
Bicyclists Killed	0	1	1	2
Head-On Crashes (Interstates)	2	0	0	2
School Buses/Bus Signal	0	0	1	1

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	222	180	174	576
Horizontal Curves	184	148	147	479
Unrestrained Occupants Seriously Injured	145	109	114	368
Aggressive Driving-Too Fast for Conditions	123	108	105	336
Young Drivers - 15-20	125	113	73	311
Alcohol and - or Other Drugs	89	76	79	244
Unsignalized Intersection Crashes	83	70	61	214
Collision with Tree	70	56	69	195
Unlicensed / Improperly Licensed Drivers	60	51	65	176
Distraction / Inattention	70	59	46	175
Distracted / Inattentive Drivers	67	51	44	162
Head-On Crashes (Non-Interstates)	53	45	50	148
Motorcyclists Seriously Injured	49	43	47	139
Older Drivers - 65-75	47	44	44	135
Commercial Motor Vehicle	31	36	40	107
Aggressive Driving-Speed Exceeded Limit	31	25	22	78
Older Drivers - 76 or Older	33	22	21	76
Aggressive Driving-Following Too Close	23	31	21	75
Signalized Intersection Crashes	23	23	26	72
Pedestrians Seriously Injured	15	18	18	51
Collision with Utility Pole	10	11	7	28
Bicyclists Seriously Injured	4	4	5	13
Work Zones	4	2	4	10
School Buses/Bus Signal	2	5	1	8
Head-On Crashes (Interstates)	2	0	0	2

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# Appendix B Troop G

## Total Fatalities and Serious Injuries by Target Area 2012 - 2014

### Hfcd'G vs STATE

#### Total Fatalities

Year	G	State	%
2012	44	826	5.33%
2013	33	757	4.36%
2014	35	766	4.57%
<b>Total</b>	<b>112</b>	<b>2,349</b>	<b>4.77%</b>

#### Total Serious Injuries

Year	G	State	%
2012	228	5,506	4.14%
2013	190	4,938	3.85%
2014	150	4,657	3.22%
<b>Total</b>	<b>568</b>	<b>15,101</b>	<b>3.76%</b>

### Hfcd'G

#### Fatalities Involving

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	29	19	16	64
Run-off-Road Crashes	24	23	16	63
Horizontal Curves	18	18	20	56
Aggressive Driving-Too Fast for Conditions	16	11	11	38
Alcohol and - or Other Drugs	12	11	9	32
Collision with Tree	12	8	8	28
Unlicensed / Improperly Licensed Drivers	10	7	10	27
Commercial Motor Vehicle	8	4	7	19
Head-On Crashes (Non-Interstates)	6	2	9	17
Young Drivers - 15-20	6	5	5	16
Distraction / Inattention	4	4	6	14
Distracted / Inattentive Drivers	4	3	6	13
Older Drivers - 76 or Older	9	2	2	13
Unsignalized Intersection Crashes	6	3	3	12
Motorcyclists Killed	4	2	5	11
Aggressive Driving-Speed Exceeded Limit	0	2	8	10
Older Drivers - 65-75	4	3	2	9
Aggressive Driving-Following Too Close	1	0	2	3
Pedestrians Killed	0	2	1	3
Collision with Utility Pole	1	1	0	2
School Buses/Bus Signal	1	0	0	1
Work Zones	0	1	0	1
Bicyclists Killed	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Signalized Intersection Crashes	0	0	0	0

#### Serious Injuries Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	125	117	87	329
Horizontal Curves	113	85	62	260
Unrestrained Occupants Seriously Injured	86	73	49	208
Aggressive Driving-Too Fast for Conditions	71	61	51	183
Collision with Tree	50	48	28	126
Young Drivers - 15-20	51	36	34	121
Alcohol and - or Other Drugs	41	35	31	107
Unlicensed / Improperly Licensed Drivers	37	26	21	84
Distraction / Inattention	29	20	24	73
Distracted / Inattentive Drivers	28	20	23	71
Unsignalized Intersection Crashes	30	25	15	70
Older Drivers - 65-75	22	16	24	62
Head-On Crashes (Non-Interstates)	27	17	17	61
Motorcyclists Seriously Injured	26	12	16	54
Older Drivers - 76 or Older	28	8	3	39
Commercial Motor Vehicle	11	17	10	38
Aggressive Driving-Speed Exceeded Limit	16	4	6	26
Aggressive Driving-Following Too Close	6	2	3	11
Collision with Utility Pole	5	3	1	9
Pedestrians Seriously Injured	2	1	3	6
Work Zones	1	0	2	3
Signalized Intersection Crashes	1	1	0	2
School Buses/Bus Signal	1	0	0	1
Bicyclists Seriously Injured	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol. This publication is possible only through the conscientious reporting efforts of Missouri law-enforcement agencies. These statistics are compiled pursuant to federal law, 23 USC Section 152.



**Troop H****Total Fatalities and Serious Injuries by Target Area  
2012 - 2014****Hfccd'H vs STATE****Total Fatalities**

Year	H	State	%
2012	38	826	4.60%
2013	28	757	3.70%
2014	28	766	3.66%
<b>Total</b>	<b>94</b>	<b>2,349</b>	<b>4.00%</b>

**Total Serious Injuries**

Year	H	State	%
2012	319	5,506	5.79%
2013	291	4,938	5.89%
2014	273	4,657	5.86%
<b>Total</b>	<b>883</b>	<b>15,101</b>	<b>5.85%</b>

**Hfccd'H****Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	22	13	12	47
Unrestrained Occupants Killed	23	11	12	46
Alcohol and - or Other Drugs	14	11	5	30
Aggressive Driving-Too Fast for Conditions	8	12	6	26
Horizontal Curves	7	9	9	25
Commercial Motor Vehicle	6	6	10	22
Aggressive Driving-Speed Exceeded Limit	8	4	3	15
Unlicensed / Improperly Licensed Drivers	7	2	6	15
Young Drivers - 15-20	10	3	2	15
Motorcyclists Killed	6	2	5	13
Older Drivers - 65-75	5	2	5	12
Unsignalized Intersection Crashes	5	3	4	12
Distracted / Inattentive Drivers	5	2	4	11
Distraction / Inattention	5	2	4	11
Older Drivers - 76 or Older	1	4	4	9
Head-On Crashes (Non-Interstates)	1	1	6	8
Collision with Tree	5	1	0	6
Collision with Utility Pole	1	3	0	4
Pedestrians Killed	2	1	0	3
Signalized Intersection Crashes	0	1	1	2
Aggressive Driving-Following Too Close	0	1	0	1
Head-On Crashes (Interstates)	0	0	1	1
Work Zones	0	0	1	1
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	126	109	114	349
Unrestrained Occupants Seriously Injured	81	92	93	266
Young Drivers - 15-20	75	83	72	230
Unsignalized Intersection Crashes	65	62	60	187
Aggressive Driving-Too Fast for Conditions	59	57	54	170
Horizontal Curves	41	60	63	164
Unlicensed / Improperly Licensed Drivers	47	34	39	120
Alcohol and - or Other Drugs	45	27	42	114
Distraction / Inattention	49	30	32	111
Distracted / Inattentive Drivers	47	29	32	108
Motorcyclists Seriously Injured	40	39	21	100
Aggressive Driving-Following Too Close	37	31	29	97
Signalized Intersection Crashes	26	32	32	90
Older Drivers - 65-75	38	17	31	86
Commercial Motor Vehicle	19	31	19	69
Head-On Crashes (Non-Interstates)	25	15	18	58
Collision with Tree	22	16	18	56
Aggressive Driving-Speed Exceeded Limit	21	20	14	55
Older Drivers - 76 or Older	16	21	15	52
Collision with Utility Pole	15	11	7	33
Pedestrians Seriously Injured	10	12	5	27
Bicyclists Seriously Injured	3	2	0	5
Work Zones	0	1	4	5
Head-On Crashes (Interstates)	0	0	1	1
School Buses/Bus Signal	0	0	0	0

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol. This publication is possible only through the conscientious reporting efforts of Missouri law-enforcement agencies. These statistics are compiled pursuant to federal law, 23 USC Section 152.

## Appendix B

### Troop I

#### Total Fatalities and Serious Injuries by Target Area 2012 - 2014

##### Hfcd'I vs STATE

###### Total Fatalities

Year	I	State	%
2012	44	826	5.33%
2013	29	757	3.83%
2014	35	766	4.57%
<b>Total</b>	<b>108</b>	<b>2,349</b>	<b>4.60%</b>

###### Total Serious Injuries

Year	I	State	%
2012	307	5,506	5.58%
2013	247	4,938	5.00%
2014	194	4,657	4.17%
<b>Total</b>	<b>748</b>	<b>15,101</b>	<b>4.95%</b>

##### Hfcd'I

###### Fatalities Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	24	16	21	61
Horizontal Curves	23	13	17	53
Unrestrained Occupants Killed	25	9	15	49
Alcohol and - or Other Drugs	17	10	10	37
Aggressive Driving-Too Fast for Conditions	18	7	11	36
Collision with Tree	11	7	8	26
Aggressive Driving-Speed Exceeded Limit	14	1	3	18
Unlicensed / Improperly Licensed Drivers	7	3	7	17
Young Drivers - 15-20	6	5	5	16
Commercial Motor Vehicle	6	4	4	14
Motorcyclists Killed	6	2	6	14
Older Drivers - 76 or Older	5	3	2	10
Older Drivers - 65-75	3	3	3	9
Distraction / Inattention	4	1	3	8
Head-On Crashes (Non-Interstates)	3	3	2	8
Distracted / Inattentive Drivers	4	1	2	7
Pedestrians Killed	2	2	3	7
Collision with Utility Pole	1	2	1	4
Unsignalized Intersection Crashes	1	1	2	4
Head-On Crashes (Interstates)	2	0	0	2
Aggressive Driving-Following Too Close	0	0	0	0
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0
Signalized Intersection Crashes	0	0	0	0
Work Zones	0	0	0	0

###### Serious Injuries Involving

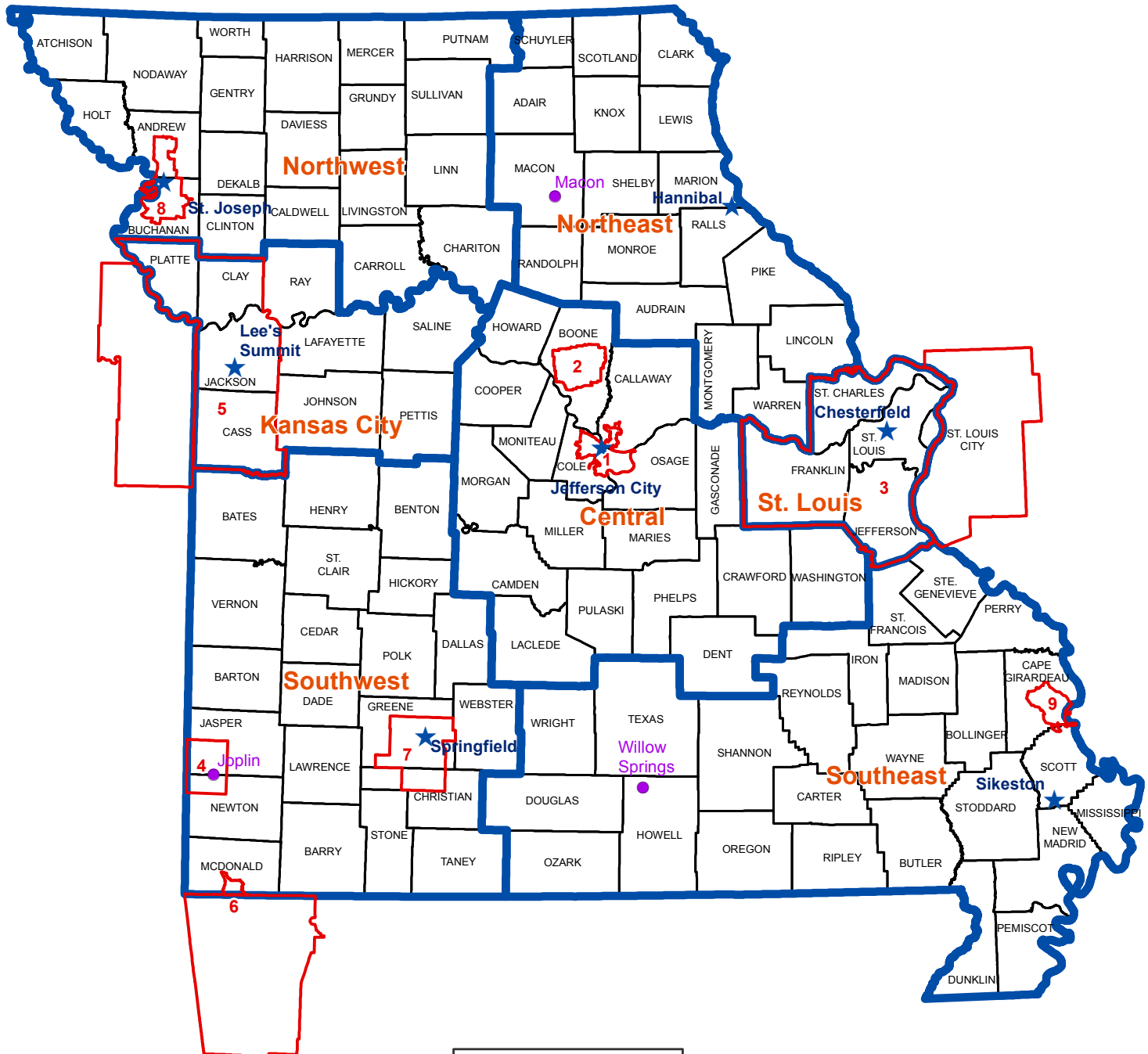
Description	2012	2013	2014	Total
Run-off-Road Crashes	162	146	104	412
Horizontal Curves	130	88	69	287
Aggressive Driving-Too Fast for Conditions	89	81	60	230
Unrestrained Occupants Seriously Injured	83	76	57	216
Young Drivers - 15-20	74	43	46	163
Collision with Tree	61	49	40	150
Alcohol and - or Other Drugs	59	39	30	128
Distraction / Inattention	45	32	32	109
Distracted / Inattentive Drivers	44	31	32	107
Motorcyclists Seriously Injured	37	32	27	96
Unlicensed / Improperly Licensed Drivers	50	22	16	88
Unsignalized Intersection Crashes	29	28	18	75
Older Drivers - 65-75	30	22	20	72
Head-On Crashes (Non-Interstates)	29	17	25	71
Commercial Motor Vehicle	26	23	13	62
Aggressive Driving-Following Too Close	21	15	11	47
Aggressive Driving-Speed Exceeded Limit	24	5	15	44
Older Drivers - 76 or Older	8	15	9	32
Collision with Utility Pole	10	3	7	20
Pedestrians Seriously Injured	3	6	4	13
Signalized Intersection Crashes	3	4	3	10
Work Zones	4	0	2	6
Head-On Crashes (Interstates)	4	0	0	4
Bicyclists Seriously Injured	1	1	1	3
School Buses/Bus Signal	1	1	0	2

Note: This summary of traffic crashes represents only those crashes that occurred on Missouri's highway system, including all public roadways. The information is a summary of the crash reports submitted to the Missouri State Highway Patrol. This publication is possible only through the conscientious reporting efforts of Missouri law-enforcement agencies. These statistics are compiled pursuant to federal law, 23 USC Section 152.

# Missouri Metropolitan Planning Organizations

## Appendix C

1. Capital Area Metropolitan Planning Organization	573-634-6410
2. Columbia Area Transportation Study Organization	573-874-7239
3. East-West Gateway Council of Governments	314-421-4220
4. Joplin Area Transportation Study Organization	417-624-0820
5. Mid-America Regional Council	816-474-4240
6. Northwest Arkansas Regional Planning Commission	479-751-7125
7. Ozarks Transportation Organization	417-865-3042
8. St. Joseph Area Transportation Study Organization	816-271-4653
9. Southeast Metropolitan Planning Organization	573-339-6327



<span style="border: 1px solid blue; padding: 2px;"> </span>	MoDOT District
<span style="border: 1px solid red; padding: 2px;">9</span>	Metropolitan Planning Organization
★	MoDOT District Office
●	Regional Office

## Appendix C

# Capital Area Metropolitan Planning Organization

## Total Fatalities and Serious Injuries by Target Area

2012-2014

### CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

#### Total Fatalities

Year	CAMPO	State	%
2012	4	826	0.48%
2013	5	757	0.66%
2014	7	766	0.91%
<b>Total</b>	<b>16</b>	<b>2,349</b>	<b>0.68%</b>

#### Total Serious Injuries

Year	CAMPO	State	%
2012	97	5506	1.76%
2013	76	4938	1.54%
2014	59	4657	1.27%
<b>Total</b>	<b>232</b>	<b>15,101</b>	<b>1.54%</b>

#### Fatalities Involving

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	3	3	3	9
Horizontal Curves	2	3	4	9
Run-off-Road Crashes	0	0	5	5
Substance-Impaired Involved	1	3	4	8
Aggressive Driving-Speed Exceeded Limit	0	2	3	5
Unsignalized Intersection Crashes	3	0	2	5
Aggressive Driving-Too Fast for Conditions	0	2	1	3
Unlicensed/Improperly Licensed Drivers	0	1	2	3
Young Drivers—15-20	0	3	0	3
Commercial Motor Vehicle	0	2	0	2
Collision with Tree	0	0	1	1
Distraction / Inattention	1	0	0	1
Head-On Crashes (Non-Interstates)	0	1	0	1
Distracted / Inattentive Drivers	1	0	0	1
Older Drivers - 65-75	0	0	1	1
Motorcyclists Killed	0	0	0	0
Pedestrians Killed	0	0	0	0
Older Drivers - 76 or Older	0	0	0	0
Signalized Intersection Crashes	0	0	0	0
Collision with Utility Pole	0	0	0	0
Aggressive Driving-Following Too Close	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0

#### Serious Injuries Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	19	21	15	55
Unsignalized Intersection Crashes	26	14	15	55
Horizontal Curves	15	19	19	53
Unrestrained Occupants Seriously Injured	14	17	19	50
Young Drivers—15-20	21	17	8	46
Unlicensed/Improperly Licensed Drivers	13	15	15	43
Signalized Intersection Crashes	17	12	10	39
Distraction / Inattention	11	10	12	33
Older Drivers - 65-75	14	9	10	33
Distracted / Inattentive Drivers	10	6	12	28
Substance-Impaired Involved	6	14	7	27
Aggressive Driving-Following Too Close	12	9	6	27
Aggressive Driving-Too Fast for Conditions	9	6	8	23
Collision with Tree	4	6	9	19
Motorcyclists Seriously Injured	6	7	6	19
Commercial Motor Vehicle	5	6	4	15
Pedestrians Seriously Injured	5	6	2	13
Head-On Crashes (Non-Interstates)	0	7	1	8
Bicyclists Seriously Injured	2	2	1	5
Collision with Utility Pole	1	2	1	4
Work Zones	0	1	0	1
School Buses/Bus Signal	0	0	1	1
Aggressive Driving-Speed Exceeded Limit	0	0	0	0
Older Drivers - 76 or Older	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0



# Columbia Area Transportation Study Organization

## Total Fatalities and Serious Injuries by Target Area

2012-2014

### COLUMBIA AREA TRANSPORTATION STUDY ORGANIZATION vs STATE

**Total Fatalities**

Year	CATSO	State	%
2012	9	826	1.09%
2013	8	757	1.06%
2014	15	766	1.96%
<b>Total</b>	<b>32</b>	<b>2,349</b>	<b>1.36%</b>

**Total Serious Injuries**

Year	CATSO	State	%
2012	60	5506	1.09%
2013	58	4938	1.17%
2014	63	4657	1.35%
<b>Total</b>	<b>181</b>	<b>15,101</b>	<b>1.20%</b>

**Fatalities Involving**

Description	2012	2013	2014	Total
Substance-Impaired Involved	4	5	6	15
Unrestrained Occupants Killed	4	3	5	12
Horizontal Curves	3	5	2	10
Unlicensed/Improperly Licensed Drivers	1	3	6	10
Aggressive Driving-Speed Exceeded Limit	0	4	3	7
Commercial Motor Vehicle	1	2	4	7
Collision with Tree	1	3	1	5
Young Drivers—15-20	3	0	1	4
Head-On Crashes (Non-Interstates)	0	1	3	4
Older Drivers - 65-75	1	0	3	4
Motorcyclists Killed	0	2	2	4
Pedestrians Killed	1	0	3	4
Run-off-Road Crashes	0	0	3	3
Unsignalized Intersection Crashes	1	0	2	3
Collision with Utility Pole	0	1	2	3
Aggressive Driving-Too Fast for Conditions	1	0	1	2
Aggressive Driving-Following Too Close	1	0	1	2
Signalized Intersection Crashes	1	0	0	1
Bicyclists Killed	0	1	0	1
School Buses/Bus Signal	0	0	1	1
Distraction / Inattention	0	0	0	0
Distracted / Inattentive Drivers	0	0	0	0
Older Drivers - 76 or Older	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	13	18	22	53
Young Drivers—15-20	15	21	13	49
Unlicensed/Improperly Licensed Drivers	5	17	17	39
Unsignalized Intersection Crashes	16	13	10	39
Horizontal Curves	11	17	9	37
Substance-Impaired Involved	14	12	10	36
Unrestrained Occupants Seriously Injured	12	11	8	31
Aggressive Driving-Too Fast for Conditions	5	10	10	25
Motorcyclists Seriously Injured	6	6	13	25
Older Drivers - 65-75	6	6	10	22
Head-On Crashes (Non-Interstates)	7	5	8	20
Signalized Intersection Crashes	5	7	7	19
Distraction / Inattention	4	8	5	17
Collision with Tree	6	6	4	16
Distracted / Inattentive Drivers	4	7	5	16
Pedestrians Seriously Injured	6	4	5	15
Aggressive Driving-Following Too Close	2	5	8	15
Commercial Motor Vehicle	1	2	11	14
Collision with Utility Pole	4	1	1	6
Bicyclists Seriously Injured	1	0	3	4
Aggressive Driving-Speed Exceeded Limit	0	1	1	2
Older Drivers - 76 or Older	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
School Buses/Bus Signal	0	0	0	0

# Appendix C

## East West Gateway Council of Governments

### Total Fatalities and Serious Injuries by Target Area

2012-2014

#### EAST WEST GATEWAY COUNCIL OF GOVERNMENTS vs STATE

##### Total Fatalities

Year	EWGCC	State	%
2012	171	826	20.70%
2013	157	757	20.74%
2014	173	766	22.58%
<b>Total</b>	<b>501</b>	<b>2,349</b>	<b>21.33%</b>

##### Total Serious Injuries

Year	EWGCC	State	%
2012	1,343	5506	24.39%
2013	1,225	4938	24.81%
2014	1,115	4657	23.94%
<b>Total</b>	<b>3,683</b>	<b>15,101</b>	<b>24.39%</b>

##### Fatalities Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	82	58	74	214
Unrestrained Occupants Killed	66	54	61	181
Horizontal Curves	58	39	58	155
Aggressive Driving-Speed Exceeded Limit	0	68	77	145
Substance-Impaired Involved	40	46	46	132
Aggressive Driving-Too Fast for Conditions	38	33	39	110
Unlicensed/Improperly Licensed Drivers	34	33	35	102
Collision with Tree	23	26	35	84
Young Drivers—15-20	30	18	32	80
Pedestrians Killed	25	31	24	80
Motorcyclists Killed	25	14	25	64
Commercial Motor Vehicle	24	18	20	62
Older Drivers - 65-75	18	23	21	62
Distraction / Inattention	22	20	16	58
Unsignalized Intersection Crashes	20	16	21	57
Head-On Crashes (Non-Interstates)	13	23	18	54
Distracted / Inattentive Drivers	20	13	13	46
Signalized Intersection Crashes	13	13	13	39
Collision with Utility Pole	10	7	7	24
Aggressive Driving-Following Too Close	4	2	3	9
Head-On Crashes (Interstates)	0	6	3	9
Work Zones	4	4	1	9
Older Drivers - 76 or Older	1	3	0	4
Bicyclists Killed	2	1	1	4
School Buses/Bus Signal	1	0	2	3

##### Serious Injuries Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	466	362	393	1,221
Horizontal Curves	326	245	257	828
Aggressive Driving-Too Fast for Conditions	282	224	232	738
Young Drivers—15-20	250	252	196	698
Unlicensed/Improperly Licensed Drivers	233	223	223	679
Unrestrained Occupants Seriously Injured	245	222	197	664
Unsignalized Intersection Crashes	213	206	199	618
Distraction / Inattention	209	204	196	609
Distracted / Inattentive Drivers	197	188	180	565
Substance-Impaired Involved	194	170	162	526
Signalized Intersection Crashes	171	180	138	489
Motorcyclists Seriously Injured	172	144	130	446
Older Drivers - 65-75	115	111	134	360
Collision with Tree	133	98	101	332
Pedestrians Seriously Injured	99	116	108	323
Head-On Crashes (Non-Interstates)	103	108	106	317
Commercial Motor Vehicle	94	97	85	276
Aggressive Driving-Following Too Close	73	99	63	235
Collision with Utility Pole	44	41	51	136
Bicyclists Seriously Injured	27	31	12	70
Work Zones	23	9	18	50
Aggressive Driving-Speed Exceeded Limit	0	23	22	45
Older Drivers - 76 or Older	9	9	5	23
Head-On Crashes (Interstates)	10	9	4	23
School Buses/Bus Signal	3	9	1	13

**Joplin Area Transportation Study Organization****Total Fatalities and Serious Injuries by Target Area****2012-2014****JOPLIN AREA TRANSPORTATION STUDY ORGANIZATION vs STATE****Total Fatalities**

Year	JATSO	State	%
2012	12	826	1.45%
2013	10	757	1.32%
2014	14	766	1.83%
<b>Total</b>	<b>36</b>	<b>2,349</b>	<b>1.53%</b>

**Total Serious Injuries**

Year	JATSO	State	%
2012	83	5506	1.51%
2013	48	4938	0.97%
2014	63	4657	1.35%
<b>Total</b>	<b>194</b>	<b>15,101</b>	<b>1.28%</b>

**Fatalities Involving**

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	5	6	5	16
Substance-Impaired Involved	3	3	2	8
Run-off-Road Crashes	0	0	7	7
Horizontal Curves	3	3	1	7
Young Drivers—15-20	2	2	3	7
Collision with Tree	2	1	3	6
Aggressive Driving-Speed Exceeded Limit	0	4	2	6
Unsignalized Intersection Crashes	4	0	2	6
Older Drivers - 65-75	1	1	4	6
Motorcyclists Killed	2	1	3	6
Aggressive Driving-Too Fast for Conditions	3	1	1	5
Unlicensed/Improperly Licensed Drivers	1	1	3	5
Distraction / Inattention	2	0	3	5
Distracted / Inattentive Drivers	2	0	3	5
Pedestrians Killed	2	2	1	5
Head-On Crashes (Non-Interstates)	1	0	2	3
Commercial Motor Vehicle	0	1	0	1
Older Drivers - 76 or Older	0	0	0	0
Signalized Intersection Crashes	0	0	0	0
Collision with Utility Pole	0	0	0	0
Aggressive Driving-Following Too Close	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Unsignalized Intersection Crashes	35	9	15	59
Run-off-Road Crashes	23	9	23	55
Young Drivers—15-20	23	14	13	50
Motorcyclists Seriously Injured	18	8	15	41
Aggressive Driving-Too Fast for Conditions	20	7	10	37
Horizontal Curves	11	8	16	35
Unrestrained Occupants Seriously Injured	19	7	6	32
Distraction / Inattention	12	11	7	30
Unlicensed/Improperly Licensed Drivers	10	8	8	26
Distracted / Inattentive Drivers	10	8	4	22
Substance-Impaired Involved	10	5	5	20
Commercial Motor Vehicle	8	3	7	18
Collision with Tree	9	3	4	16
Older Drivers - 65-75	5	4	7	16
Aggressive Driving-Following Too Close	5	6	5	16
Head-On Crashes (Non-Interstates)	6	8	0	14
Signalized Intersection Crashes	3	5	6	14
Pedestrians Seriously Injured	4	4	4	12
Bicyclists Seriously Injured	3	2	1	6
Work Zones	2	2	0	4
Aggressive Driving-Speed Exceeded Limit	0	2	1	3
Collision with Utility Pole	1	1	0	2
Older Drivers - 76 or Older	0	1	0	1
Head-On Crashes (Interstates)	0	0	0	0
School Buses/Bus Signal	0	0	0	0

# Appendix C

## Mid-America Regional Council

### Total Fatalities and Serious Injuries by Target Area 2012-2014

#### MID-AMERICA REGIONAL COUNCIL vs STATE

**Total Fatalities**

Year	MARC	State	%
2012	125	826	15.13%
2013	118	757	15.59%
2014	95	766	12.40%
<b>Total</b>	<b>338</b>	<b>2,349</b>	<b>14.39%</b>

**Total Serious Injuries**

Year	MARC	State	%
2012	882	5506	16.02%
2013	874	4938	17.70%
2014	751	4657	16.13%
<b>Total</b>	<b>2,507</b>	<b>15,101</b>	<b>16.60%</b>

**Fatalities Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	52	56	36	144
Unrestrained Occupants Killed	52	45	32	129
Unlicensed/Improperly Licensed Drivers	30	29	34	93
Horizontal Curves	33	37	16	86
Substance-Impaired Involved	29	32	24	85
Aggressive Driving-Speed Exceeded Limit	0	49	28	77
Aggressive Driving-Too Fast for Conditions	20	27	13	60
Commercial Motor Vehicle	16	21	17	54
Pedestrians Killed	21	17	16	54
Motorcyclists Killed	21	15	12	48
Young Drivers—15-20	16	15	11	42
Collision with Tree	15	17	8	40
Unsignalized Intersection Crashes	14	7	8	29
Older Drivers - 65-75	11	12	6	29
Signalized Intersection Crashes	10	9	9	28
Distraction / Inattention	10	10	7	27
Distracted / Inattentive Drivers	8	9	6	23
Head-On Crashes (Non-Interstates)	7	3	6	16
Collision with Utility Pole	3	8	3	14
Head-On Crashes (Interstates)	5	1	3	9
Work Zones	2	2	1	5
Bicyclists Killed	1	1	2	4
Older Drivers - 76 or Older	2	1	0	3
Aggressive Driving-Following Too Close	0	1	1	2
School Buses/Bus Signal	0	0	1	1

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	220	259	227	706
Young Drivers—15-20	224	177	127	528
Unsignalized Intersection Crashes	181	150	154	485
Horizontal Curves	141	153	140	434
Unlicensed/Improperly Licensed Drivers	160	137	137	434
Signalized Intersection Crashes	149	156	124	429
Unrestrained Occupants Seriously Injured	146	143	123	412
Distraction / Inattention	149	137	126	412
Aggressive Driving-Too Fast for Conditions	139	150	118	407
Distracted / Inattentive Drivers	142	132	123	397
Motorcyclists Seriously Injured	124	97	95	316
Substance-Impaired Involved	106	114	93	313
Aggressive Driving-Following Too Close	95	96	89	280
Older Drivers - 65-75	82	92	94	268
Head-On Crashes (Non-Interstates)	75	61	60	196
Collision with Tree	53	70	50	173
Commercial Motor Vehicle	47	70	53	170
Pedestrians Seriously Injured	41	59	52	152
Collision with Utility Pole	34	36	30	100
Work Zones	15	14	12	41
Bicyclists Seriously Injured	15	11	12	38
Head-On Crashes (Interstates)	10	2	5	17
Older Drivers - 76 or Older	3	4	8	15
Aggressive Driving-Speed Exceeded Limit	0	5	6	11
School Buses/Bus Signal	2	1	1	4



# Northwest Arkansas Regional Planning Commission

## Total Fatalities and Serious Injuries by Target Area

2012-2014

### NORTHWEST ARKANSAS REGIONAL PLANNING COMMISSION vs STATE

**Total Fatalities**

Year	NWARPC	State	%
2012	1	826	0.12%
2013	2	757	0.26%
2014	1	766	0.13%
<b>Total</b>	<b>4</b>	<b>2,349</b>	<b>0.17%</b>

**Total Serious Injuries**

Year	NWARPC	State	%
2012	1	5506	0.02%
2013	3	4938	0.06%
2014	1	4657	0.02%
<b>Total</b>	<b>5</b>	<b>15,101</b>	<b>0.03%</b>

**Fatalities Involving**

Description	2012	2013	2014	Total
Unlicensed/Improperly Licensed Drivers	0	2	0	2
Aggressive Driving-Speed Exceeded Limit	0	2	0	2
Young Drivers—15-20	0	2	0	2
Run-off-Road Crashes	0	0	1	1
Unrestrained Occupants Killed	1	0	0	1
Horizontal Curves	0	0	1	1
Commercial Motor Vehicle	0	0	1	1
Unsignalized Intersection Crashes	1	0	0	1
Older Drivers - 65-75	1	0	0	1
Pedestrians Killed	0	0	1	1
Substance-Impaired Involved	0	0	0	0
Aggressive Driving-Too Fast for Conditions	0	0	0	0
Collision with Tree	0	0	0	0
Distraction / Inattention	0	0	0	0
Head-On Crashes (Non-Interstates)	0	0	0	0
Distracted / Inattentive Drivers	0	0	0	0
Motorcyclists Killed	0	0	0	0
Older Drivers - 76 or Older	0	0	0	0
Signalized Intersection Crashes	0	0	0	0
Collision with Utility Pole	0	0	0	0
Aggressive Driving-Following Too Close	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Unrestrained Occupants Seriously Injured	0	2	1	3
Young Drivers—15-20	0	2	1	3
Aggressive Driving-Speed Exceeded Limit	0	2	0	2
Run-off-Road Crashes	0	1	0	1
Substance-Impaired Involved	0	1	0	1
Distraction / Inattention	0	0	1	1
Distracted / Inattentive Drivers	0	0	1	1
Signalized Intersection Crashes	1	0	0	1
Horizontal Curves	0	0	0	0
Aggressive Driving-Too Fast for Conditions	0	0	0	0
Unlicensed/Improperly Licensed Drivers	0	0	0	0
Collision with Tree	0	0	0	0
Commercial Motor Vehicle	0	0	0	0
Head-On Crashes (Non-Interstates)	0	0	0	0
Unsignalized Intersection Crashes	0	0	0	0
Older Drivers - 65-75	0	0	0	0
Motorcyclists Seriously Injured	0	0	0	0
Pedestrians Seriously Injured	0	0	0	0
Older Drivers - 76 or Older	0	0	0	0
Collision with Utility Pole	0	0	0	0
Aggressive Driving-Following Too Close	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
Bicyclists Seriously Injured	0	0	0	0
School Buses/Bus Signal	0	0	0	0

# Appendix C

## Ozarks Transportation Organization

### Total Fatalities and Serious Injuries by Target Area 2012-2014

#### OZARK TRANSPORTATION ORGANIZATION vs STATE

##### Total Fatalities

Year	OTO	State	%
2012	6	826	0.73%
2013	5	757	0.66%
2014	5	766	0.65%
<b>Total</b>	<b>16</b>	<b>2,349</b>	<b>0.68%</b>

##### Total Serious Injuries

Year	SEMPO	State	%
2012	37	5506	0.67%
2013	26	4938	0.53%
2014	26	4657	0.56%
<b>Total</b>	<b>89</b>	<b>15,101</b>	<b>0.59%</b>

##### Fatalities Involving

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	16	8	11	35
Substance-Impaired Involved	11	5	3	19
Unsignalized Intersection Crashes	10	5	4	19
Aggressive Driving-Speed Exceeded Limit	0	10	7	17
Older Drivers - 65-75	6	6	3	15
Young Drivers—15-20	5	8	1	14
Aggressive Driving-Too Fast for Conditions	7	2	4	13
Head-On Crashes (Non-Interstates)	8	4	1	13
Pedestrians Killed	7	2	4	13
Commercial Motor Vehicle	6	4	2	12
Distraction / Inattention	6	4	2	12
Motorcyclists Killed	4	3	4	11
Signalized Intersection Crashes	4	2	5	11
Horizontal Curves	6	3	1	10
Unlicensed/Improperly Licensed Drivers	8	2	0	10
Collision with Tree	5	4	0	9
Run-off-Road Crashes	0	0	8	8
Distracted / Inattentive Drivers	4	3	1	8
Collision with Utility Pole	2	2	2	6
Aggressive Driving-Following Too Close	1	0	1	2
Work Zones	0	1	1	2
Bicyclists Killed	1	1	0	2
Older Drivers - 76 or Older	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
School Buses/Bus Signal	0	0	0	0

##### Serious Injuries Involving

Description	2012	2013	2014	Total
Run-off-Road Crashes	69	63	57	189
Young Drivers—15-20	61	48	35	144
Unsignalized Intersection Crashes	36	52	52	140
Horizontal Curves	39	30	45	114
Unrestrained Occupants Seriously Injured	50	34	29	113
Distraction / Inattention	35	36	40	111
Unlicensed/Improperly Licensed Drivers	36	34	34	104
Distracted / Inattentive Drivers	34	32	37	103
Motorcyclists Seriously Injured	25	34	44	103
Aggressive Driving-Too Fast for Conditions	36	27	36	99
Substance-Impaired Involved	40	28	26	94
Signalized Intersection Crashes	27	31	24	82
Aggressive Driving-Following Too Close	27	31	22	80
Collision with Tree	25	12	14	51
Head-On Crashes (Non-Interstates)	15	19	17	51
Commercial Motor Vehicle	24	13	12	49
Older Drivers - 65-75	15	16	18	49
Pedestrians Seriously Injured	10	14	9	33
Collision with Utility Pole	10	7	9	26
Bicyclists Seriously Injured	5	3	8	16
Aggressive Driving-Speed Exceeded Limit	0	5	2	7
Work Zones	2	2	0	4
School Buses/Bus Signal	1	1	2	4
Older Drivers - 76 or Older	0	1	1	2
Head-On Crashes (Interstates)	0	0	0	0

## Appendix C

**Southeast MPO****Total Fatalities and Serious Injuries by Target Area  
2012-2014****SOUTHEAST MPO vs STATE****Total Fatalities**

Year	SEMPO	State	%
2012	6	826	0.73%
2013	5	757	0.66%
2014	5	766	0.65%
<b>Total</b>	<b>16</b>	<b>2,349</b>	<b>0.68%</b>

**Total Serious Injuries**

Year	SEMPO	State	%
2012	37	5506	0.67%
2013	26	4938	0.53%
2014	26	4657	0.56%
<b>Total</b>	<b>89</b>	<b>15,101</b>	<b>0.59%</b>

**Fatalities Involving**

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	2	2	3	7
Older Drivers - 65-75	3	1	2	6
Substance-Impaired Involved	2	0	3	5
Horizontal Curves	1	2	1	4
Head-On Crashes (Non-Interstates)	1	1	2	4
Collision with Tree	1	2	0	3
Aggressive Driving-Speed Exceeded Limit	0	3	0	3
Young Drivers—15-20	1	2	0	3
Pedestrians Killed	1	2	0	3
Aggressive Driving-Too Fast for Conditions	1	1	0	2
Unlicensed/Improperly Licensed Drivers	1	1	0	2
Distraction / Inattention	1	1	0	2
Distracted / Inattentive Drivers	1	1	0	2
Older Drivers - 76 or Older	1	1	0	2
Run-off-Road Crashes	0	0	1	1
Commercial Motor Vehicle	1	0	0	1
Signalized Intersection Crashes	1	0	0	1
Collision with Utility Pole	1	0	0	1
Aggressive Driving-Following Too Close	1	0	0	1
Unsignalized Intersection Crashes	0	0	0	0
Motorcyclists Killed	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0

**Serious Injuries Involving**

Description	2012	2013	2014	Total
Run-off-Road Crashes	13	10	9	32
Unrestrained Occupants Seriously Injured	12	5	5	22
Horizontal Curves	11	3	7	21
Aggressive Driving-Too Fast for Conditions	7	6	4	17
Older Drivers - 65-75	5	4	5	14
Motorcyclists Seriously Injured	8	4	2	14
Substance-Impaired Involved	8	3	2	13
Young Drivers—15-20	7	3	3	13
Unlicensed/Improperly Licensed Drivers	4	4	4	12
Aggressive Driving-Following Too Close	4	5	3	12
Head-On Crashes (Non-Interstates)	3	3	5	11
Distraction / Inattention	4	3	3	10
Distracted / Inattentive Drivers	4	3	3	10
Unsignalized Intersection Crashes	4	2	4	10
Collision with Tree	3	3	2	8
Signalized Intersection Crashes	2	3	3	8
Commercial Motor Vehicle	2	2	1	5
Older Drivers - 76 or Older	2	0	0	2
Bicyclists Seriously Injured	1	1	0	2
Collision with Utility Pole	1	0	0	1
Aggressive Driving-Speed Exceeded Limit	0	0	0	0
Pedestrians Seriously Injured	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
School Buses/Bus Signal	0	0	0	0

Appendix C

# **St. Joseph Area Transportation Safety Organization**

## **Total Fatalities and Serious Injuries by Target Area**

**2012-2014**

### **ST. JOSEPH AREA TRANSPORTATION SAFETY ORGANIZATION vs. STATE**

#### **Total Fatalities**

Year	SJATSO	State	%
2012	13	826	1.57%
2013	11	757	1.45%
2014	6	766	0.78%
<b>Total</b>	<b>30</b>	<b>2,349</b>	<b>1.28%</b>

#### **Total Serious Injuries**

Year	SJATSO	State	%
2012	177	5506	3.21%
2013	157	4938	3.18%
2014	135	4657	2.90%
<b>Total</b>	<b>469</b>	<b>15,101</b>	<b>3.11%</b>

#### **Fatalities Involving**

Description	2012	2013	2014	Total
Unrestrained Occupants Killed	7	6	3	16
Aggressive Driving-Speed Exceeded Limit	0	7	4	11
Aggressive Driving-Too Fast for Conditions	3	5	2	10
Young Drivers—15-20	8	1	0	9
Substance-Impaired Involved	6	1	1	8
Unlicensed/Improperly Licensed Drivers	5	0	2	7
Motorcyclists Killed	5	0	2	7
Horizontal Curves	1	3	2	6
Commercial Motor Vehicle	0	3	2	5
Distraction / Inattention	1	2	1	4
Distracted / Inattentive Drivers	1	2	1	4
Unsignalized Intersection Crashes	2	1	1	4
Run-off-Road Crashes	0	0	3	3
Collision with Tree	3	0	0	3
Older Drivers - 65-75	1	2	0	3
Head-On Crashes (Non-Interstates)	1	0	1	2
Older Drivers - 76 or Older	0	2	0	2
Signalized Intersection Crashes	0	1	1	2
Pedestrians Killed	0	1	0	1
Collision with Utility Pole	0	1	0	1
Aggressive Driving-Following Too Close	0	0	0	0
Head-On Crashes (Interstates)	0	0	0	0
Work Zones	0	0	0	0
Bicyclists Killed	0	0	0	0
School Buses/Bus Signal	0	0	0	0

#### **Serious Injuries Involving**

Description	2012	2013	2014	Total
Unsignalized Intersection Crashes	52	42	43	137
Young Drivers—15-20	44	47	38	129
Run-off-Road Crashes	37	42	27	106
Unrestrained Occupants Seriously Injured	38	34	29	101
Signalized Intersection Crashes	26	29	32	87
Unlicensed/Improperly Licensed Drivers	31	25	25	81
Aggressive Driving-Following Too Close	28	25	27	80
Horizontal Curves	17	27	28	72
Motorcyclists Seriously Injured	31	28	13	72
Aggressive Driving-Too Fast for Conditions	18	24	21	63
Distraction / Inattention	28	12	17	57
Distracted / Inattentive Drivers	26	12	17	55
Older Drivers - 65-75	20	6	14	40
Substance-Impaired Involved	21	7	11	39
Collision with Tree	14	9	5	28
Head-On Crashes (Non-Interstates)	12	5	9	26
Pedestrians Seriously Injured	8	9	4	21
Collision with Utility Pole	10	6	5	21
Commercial Motor Vehicle	3	12	3	18
Aggressive Driving-Speed Exceeded Limit	0	8	0	8
Older Drivers - 76 or Older	0	7	0	7
Work Zones	0	0	4	4
Bicyclists Seriously Injured	3	1	0	4
Head-On Crashes (Interstates)	0	0	1	1
School Buses/Bus Signal	0	0	0	0



**Total Fatalities by Age and Target Area**

2012 - 2014

**Unrestrained Occupant**

Age	Fatalities	Percent of Total Fatalities
15-20	160	15.14%
21-25	156	14.76%
26-30	107	10.12%
*≥66	118	11.16%
41-45	77	7.28%
31-35	91	8.61%
36-40	88	8.33%
46-50	61	5.77%
56-60	49	4.64%
51-55	76	7.19%
61-65	48	4.54%
9-14	17	1.61%
7	1	0.09%
5	0	0.00%
8	2	0.19%
1	1	0.09%
2	2	0.19%
3	0	0.00%
6	1	0.09%
**<1	1	0.09%
4	1	0.09%
Unknown	0	0.00%
<b>TOTAL</b>	<b>1,057</b>	<b>100.00%</b>

**Run-Off Road Involved**

Age	Fatalities	Percent of Total Fatalities
15-20	165	14.76%
21-25	169	15.12%
*≥66	128	11.45%
26-30	102	9.12%
46-50	72	6.44%
41-45	66	5.90%
51-55	99	8.86%
36-40	92	8.23%
56-60	57	5.10%
31-35	87	7.78%
61-65	44	3.94%
9-14	14	1.25%
3	3	0.27%
1	4	0.36%
6	1	0.09%
**<1	3	0.27%
2	5	0.45%
4	1	0.09%
5	1	0.09%
7	3	0.27%
8	2	0.18%
Unknown	0	0.00%
<b>TOTAL</b>	<b>1,118</b>	<b>100.00%</b>

**Too Fast For Condition Involved**

Age	Fatalities	Percent of Total Fatalities
15-20	166	17.74%
21-25	132	14.10%
26-30	93	9.94%
*≥66	89	9.51%
41-45	78	8.33%
46-50	59	6.30%
31-35	78	8.33%
51-55	65	6.94%
36-40	63	6.73%
56-60	52	5.56%
61-65	38	4.06%
9-14	11	1.18%
2	1	0.11%
5	0	0.00%
**<1	2	0.21%
1	1	0.11%
3	4	0.43%
4	0	0.00%
6	0	0.00%
7	3	0.32%
8	1	0.11%
Unknown	0	0.00%
<b>TOTAL</b>	<b>936</b>	<b>100.00%</b>

**Speed Exceeded Limit Involved**

Age	Fatalities	Percent of Total Fatalities
21-25	44	17.05%
15-20	36	13.95%
26-30	27	10.47%
31-35	31	12.02%
41-45	17	6.59%
36-40	21	8.14%
46-50	13	5.04%
51-55	18	6.98%
56-60	18	6.98%
*≥66	14	5.43%
61-65	5	1.94%
9-14	10	3.88%
3	0	0.00%
1	0	0.00%
2	1	0.39%
4	0	0.00%
7	1	0.39%
**<1	0	0.00%
5	0	0.00%
6	0	0.00%
8	2	0.78%
Unknown	0	0.00%
<b>TOTAL</b>	<b>258</b>	<b>100.00%</b>

\* Greater than or equal to 66    \*\* Less than 1

## Appendix D

### Total Fatalities by Age and Target Area

2012 - 2014

#### Following Too Close Involved

Age	Fatalities	Percent of Total Fatalities
*≥66	17	20.24%
15-20	7	8.33%
41-45	11	13.10%
56-60	7	8.33%
21-25	5	5.95%
51-55	8	9.52%
26-30	6	7.14%
31-35	5	5.95%
36-40	4	4.76%
46-50	6	7.14%
61-65	5	5.95%
4	2	2.38%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	1	1.19%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
9-14	0	0.00%
Unknown	0	0.00%
<b>TOTAL</b>	<b>84</b>	<b>100.00%</b>

#### Horizontal Curve Involved

Age	Fatalities	Percent of Total Fatalities
15-20	97	12.16%
21-25	110	13.78%
*≥66	97	12.16%
46-50	55	6.89%
26-30	77	9.65%
51-55	61	7.64%
41-45	58	7.27%
36-40	66	8.27%
31-35	58	7.27%
56-60	55	6.89%
61-65	38	4.76%
9-14	10	1.25%
3	3	0.38%
7	1	0.13%
4	0	0.00%
6	2	0.25%
Unknown	0	0.00%
**<1	2	0.25%
1	3	0.38%
2	3	0.38%
5	1	0.13%
8	1	0.13%
<b>TOTAL</b>	<b>798</b>	<b>100.00%</b>

#### Alcohol & Other Drug Involved

Age	Fatalities	Percent of Total Fatalities
21-25	450	18.58%
15-20	341	14.08%
26-30	273	11.27%
31-35	250	10.32%
46-50	194	8.01%
41-45	219	9.04%
36-40	208	8.59%
51-55	170	7.02%
56-60	114	4.71%
*≥66	98	4.05%
61-65	59	2.44%
9-14	24	0.99%
3	6	0.25%
Unknown	0	0.00%
2	3	0.12%
5	3	0.12%
8	4	0.17%
**<1	0	0.00%
1	3	0.12%
4	1	0.04%
6	1	0.04%
7	1	0.04%
<b>TOTAL</b>	<b>2422</b>	<b>100.00%</b>

#### Distracted Driver Involved

Age	Fatalities	Percent of Total Fatalities
*≥66	288	17.21%
15-20	255	15.24%
21-25	150	8.97%
26-30	132	7.89%
41-45	136	8.13%
51-55	117	6.99%
56-60	117	6.99%
46-50	121	7.23%
61-65	90	5.38%
36-40	99	5.92%
31-35	96	5.74%
9-14	29	1.73%
5	5	0.30%
6	11	0.66%
1	3	0.18%
2	8	0.48%
3	5	0.30%
8	3	0.18%
4	4	0.24%
7	2	0.12%
**<1	2	0.12%
Unknown	0	0.00%
<b>TOTAL</b>	<b>1673</b>	<b>100.00%</b>

\* Greater than or equal to 66    \*\* Less than 1

**Total Fatalities by Age and Target Area**

2012 - 2014

**Unsignalized Intersection**

Age	Fatalities	Percent of Total Fatalities
*>=66	88	33.85%
15-20	21	8.08%
21-25	22	8.46%
51-55	24	9.23%
26-30	19	7.31%
41-45	9	3.46%
36-40	12	4.62%
56-60	16	6.15%
46-50	17	6.54%
31-35	9	3.46%
61-65	15	5.77%
3	0	0.00%
7	0	0.00%
9-14	3	1.15%
2	0	0.00%
5	0	0.00%
6	1	0.38%
8	2	0.77%
**<1	0	0.00%
1	1	0.38%
4	1	0.38%
Unknown	0	0.00%
<b>TOTAL</b>	<b>260</b>	<b>100.00%</b>

**Signalized Intersection Involved**

Age	Fatalities	Percent of Total Fatalities
*>=66	23	26.44%
21-25	8	9.20%
26-30	7	8.05%
46-50	5	5.75%
36-40	6	6.90%
51-55	3	3.45%
31-35	7	8.05%
41-45	7	8.05%
61-65	3	3.45%
15-20	8	9.20%
56-60	6	6.90%
9-14	3	3.45%
Unknown	0	0.00%
**<1	0	0.00%
1	0	0.00%
2	1	1.15%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
<b>TOTAL</b>	<b>87</b>	<b>100.00%</b>

**Collision with Tree Involved**

Age	Fatalities	Percent of Total Fatalities
15-20	84	20.24%
21-25	52	12.53%
*>=66	43	10.36%
46-50	33	7.95%
56-60	27	6.51%
51-55	26	6.27%
26-30	31	7.47%
36-40	40	9.64%
41-45	19	4.58%
31-35	33	7.95%
61-65	17	4.10%
9-14	6	1.45%
1	1	0.24%
3	1	0.24%
4	0	0.00%
6	0	0.00%
7	0	0.00%
**<1	1	0.24%
2	1	0.24%
5	0	0.00%
8	0	0.00%
Unknown	0	0.00%
<b>TOTAL</b>	<b>415</b>	<b>100.00%</b>

**Unlicensed Driver Involved**

Age	Fatalities	Percent of Total Fatalities
21-25	63	14.09%
26-30	58	12.98%
15-20	48	10.74%
41-45	42	9.40%
31-35	55	12.30%
36-40	39	8.72%
46-50	30	6.71%
51-55	38	8.50%
56-60	20	4.47%
*>=66	20	4.47%
61-65	12	2.68%
9-14	8	1.79%
3	2	0.45%
1	5	1.12%
4	3	0.67%
**<1	2	0.45%
2	1	0.22%
5	0	0.00%
6	0	0.00%
7	1	0.22%
8	0	0.00%
Unknown	0	0.00%
<b>TOTAL</b>	<b>447</b>	<b>100.00%</b>

\* Greater than or equal to 66    \*\* Less than 1

**Total Fatalities by Age and Target Area**

2012 - 2014

**Head-On (Non Interstate)**

Age	Fatalities	Percent of Total Fatalities
*>=66	56	19.18%
15-20	22	7.53%
41-45	26	8.90%
21-25	36	12.33%
46-50	17	5.82%
51-55	19	6.51%
26-30	25	8.56%
56-60	26	8.90%
61-65	16	5.48%
31-35	18	6.16%
36-40	18	6.16%
9-14	4	1.37%
2	0	0.00%
8	1	0.34%
**<1	1	0.34%
1	2	0.68%
3	1	0.34%
4	1	0.34%
5	1	0.34%
6	0	0.00%
7	1	0.34%
Unknown	1	0.34%
<b>TOTAL</b>	<b>292</b>	<b>100.00%</b>

**Head-On (Interstate)**

Age	Fatalities	Percent of Total Fatalities
31-35	4	13.79%
15-20	1	3.45%
26-30	5	17.24%
51-55	0	0.00%
61-65	0	0.00%
9-14	0	0.00%
*>=66	8	27.59%
21-25	3	10.34%
41-45	0	0.00%
46-50	3	10.34%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
36-40	2	6.90%
56-60	3	10.34%
Unknown	0	0.00%
<b>TOTAL</b>	<b>29</b>	<b>100.00%</b>

**Commercial Motor Vehicle Involved**

Age	Fatalities	Percent of Total Fatalities
*>=66	59	18.15%
15-20	28	8.62%
26-30	22	6.77%
46-50	26	8.00%
51-55	29	8.92%
21-25	31	9.54%
56-60	19	5.85%
41-45	28	8.62%
36-40	21	6.46%
61-65	18	5.54%
31-35	28	8.62%
9-14	9	2.77%
6	0	0.00%
1	2	0.62%
3	0	0.00%
8	1	0.31%
**<1	2	0.62%
2	1	0.31%
4	0	0.00%
5	1	0.31%
7	0	0.00%
Unknown	0	0.00%
<b>TOTAL</b>	<b>325</b>	<b>100.00%</b>

**Motorcyclists**

Age	Fatalities	Percent of Total Fatalities
51-55	29	11.11%
21-25	33	12.64%
41-45	26	9.96%
36-40	24	9.20%
56-60	25	9.58%
26-30	30	11.49%
46-50	29	11.11%
*>=66	18	6.90%
61-65	13	4.98%
15-20	9	3.45%
31-35	25	9.58%
9-14	0	0.00%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
Unknown	0	0.00%
<b>TOTAL</b>	<b>261</b>	<b>100.00%</b>

\* Greater than or equal to 66    \*\* Less than 1



## Appendix D

### Total Fatalities by Age and Target Area

2012 - 2014

#### Pedestrians

Age	Fatalities	Percent of Total Fatalities
*>=66	36	15.65%
46-50	16	6.96%
26-30	21	9.13%
51-55	26	11.30%
15-20	23	10.00%
36-40	14	6.09%
21-25	21	9.13%
41-45	18	7.83%
61-65	7	3.04%
31-35	14	6.09%
56-60	18	7.83%
9-14	2	0.87%
4	1	0.43%
5	1	0.43%
1	2	0.87%
2	4	1.74%
3	1	0.43%
6	2	0.87%
7	0	0.00%
**<1	1	0.43%
8	2	0.87%
Unknown	0	0.00%
<b>TOTAL</b>	<b>230</b>	<b>100.00%</b>

#### Utility Pole Involved

Age	Fatalities	Percent of Total Fatalities
15-20	16	18.60%
21-25	15	17.44%
26-30	10	11.63%
31-35	8	9.30%
46-50	5	5.81%
51-55	4	4.65%
*>=66	8	9.30%
41-45	4	4.65%
56-60	3	3.49%
36-40	11	12.79%
9-14	1	1.16%
61-65	1	1.16%
1	0	0.00%
**<1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
Unknown	0	0.00%
<b>TOTAL</b>	<b>86</b>	<b>100.00%</b>

#### Work Zone Involved

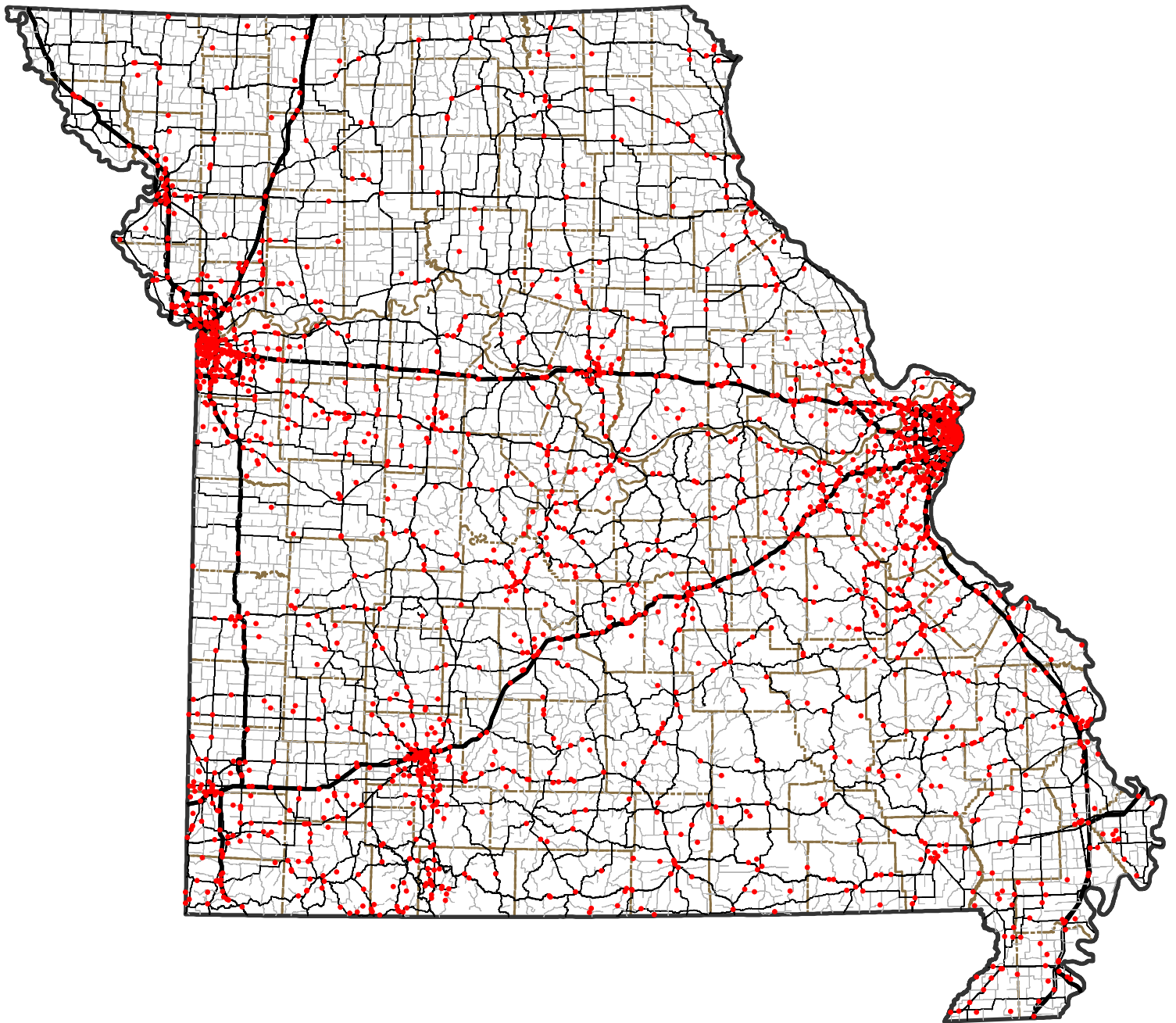
Age	Fatalities	Percent of Total Fatalities
51-55	2	7.69%
*>=66	6	23.08%
26-30	1	3.85%
31-35	3	11.54%
15-20	4	15.38%
41-45	2	7.69%
61-65	1	3.85%
36-40	4	15.38%
46-50	1	3.85%
56-60	1	3.85%
21-25	1	3.85%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
9-14	0	0.00%
Unknown	0	0.00%
<b>TOTAL</b>	<b>26</b>	<b>100.00%</b>

#### Bicyclists

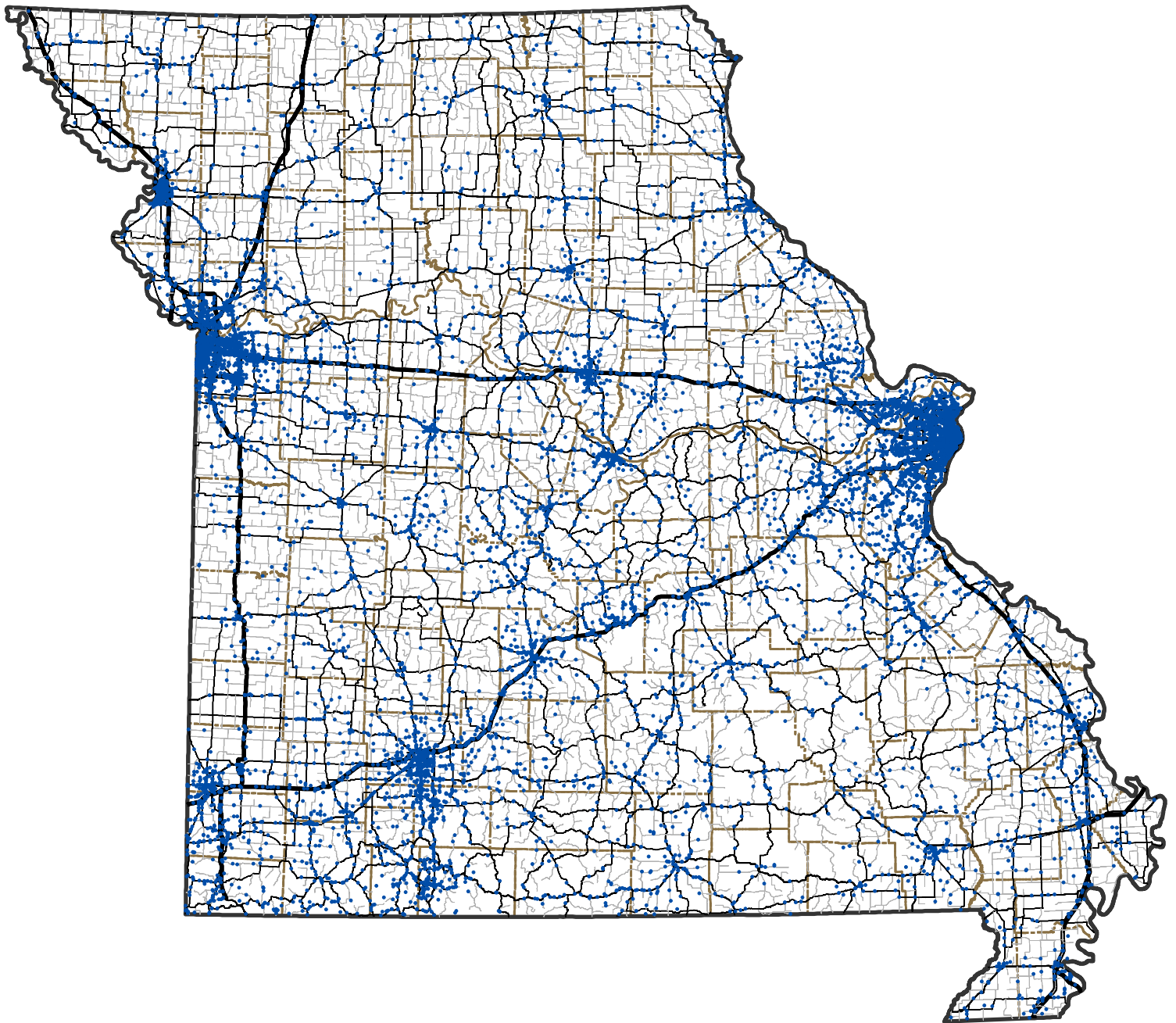
Age	Fatalities	Percent of Total Fatalities
46-50	1	7.14%
7	0	0.00%
9-14	2	14.29%
15-20	2	14.29%
26-30	1	7.14%
31-35	1	7.14%
51-55	1	7.14%
56-60	0	0.00%
61-65	0	0.00%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
8	0	0.00%
21-25	2	14.29%
36-40	1	7.14%
41-45	1	7.14%
*>=66	2	14.29%
Unknown	0	0.00%
<b>TOTAL</b>	<b>14</b>	<b>100.00%</b>

\* Greater than or equal to 66    \*\* Less than 1

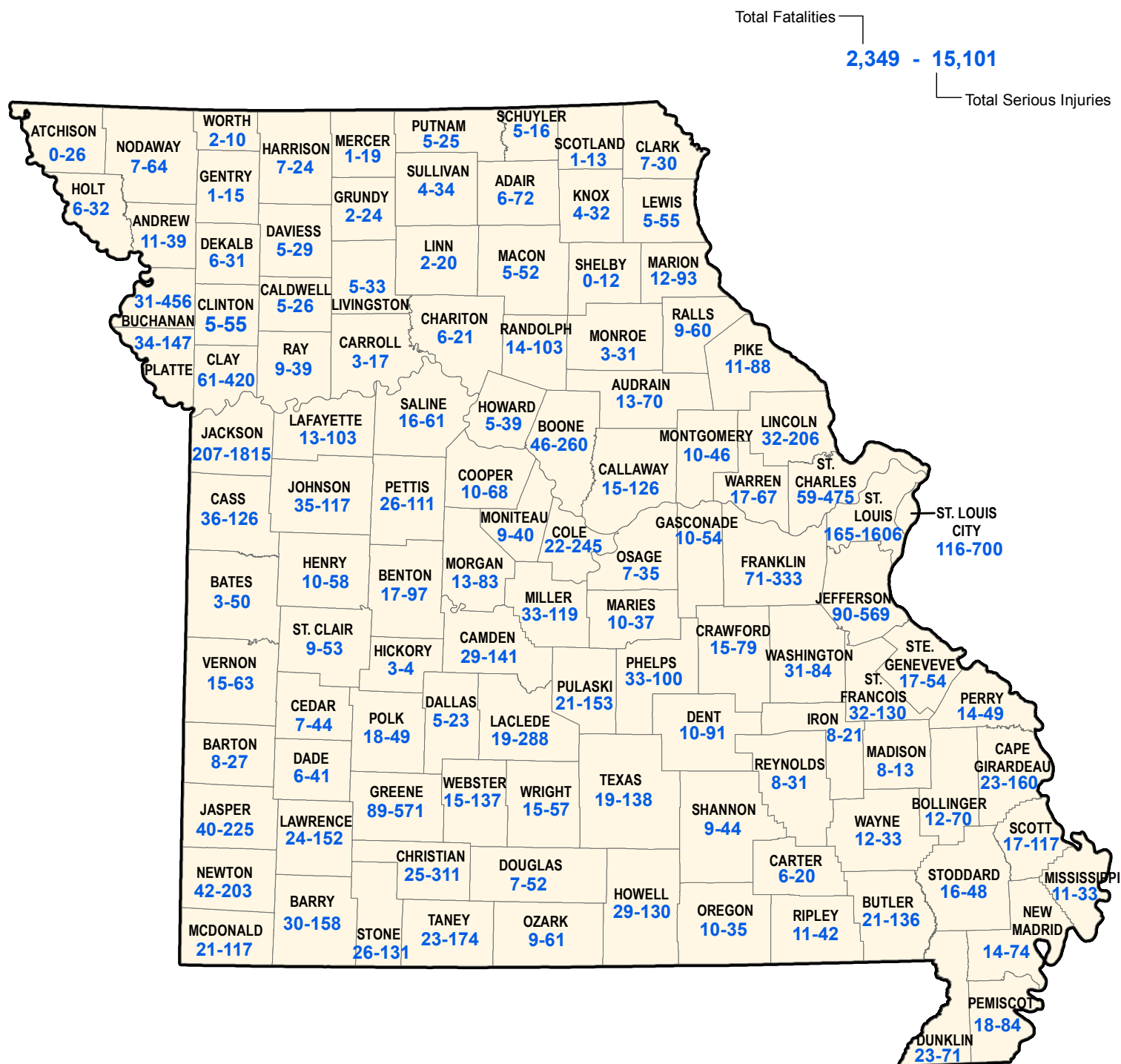
● Fatal Crashes



● Serious Injury Crashes



## Fatalities and Serious Injuries by County 2012 - 2014





# Missouri Motor Vehicle Crashes Teenagers (ages 13-19) Unbelted Occupant Fatalities 2012-2014

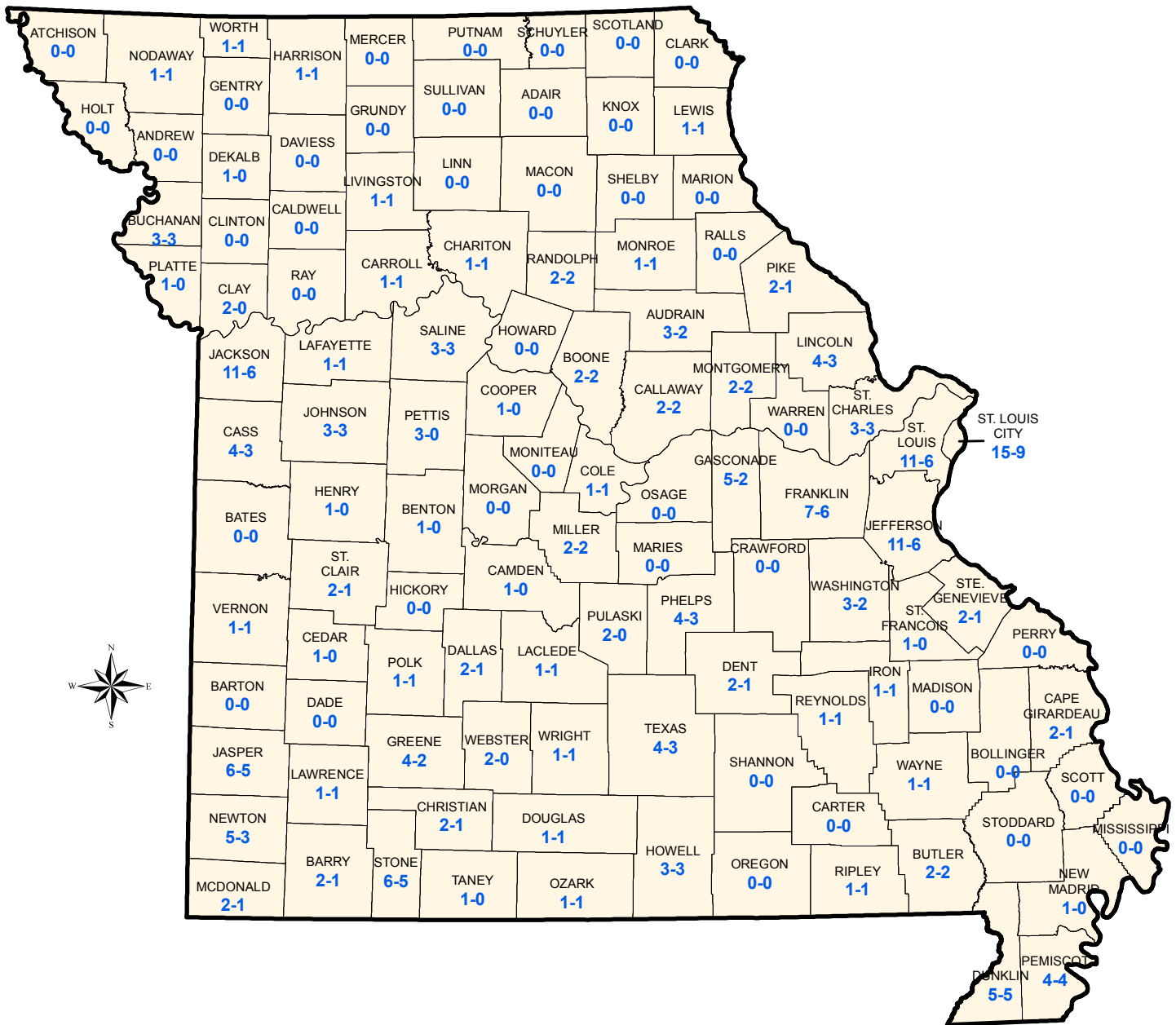
Appendix E

Total Teen Occupant  
Fatalities For 2012-2014  
**197\*- 132**

\*Includes 15 with unknown belt usage.

Total Unbelted Teen Occupant  
Fatalities For 2012-2014

2014 crash data is incomplete at this time and is subject to change.



# Missouri Motor Vehicle Unbelted Occupant Fatalities 2012-2014

Appendix E

Total Occupant  
Fatalities for 2012-2014  
**1,776\*- 1,057**  
Total Unbelted Occupant  
Fatalities for 2012-2014

\*Includes 148 with unknown belt usage.



# DEVELOPMENT & IMPLEMENTATION



## **MISSOURI STRATEGIC HIGHWAY SAFETY PLAN - DEVELOPMENT PROCESS**

Missouri has developed four Strategic Highway Safety Plans (SHSP). In each case the process to develop these plans has taken approximately a year and a half and involved many safety partners. Below is a detailed description of the update process for our latest SHSP; *Missouri's Blueprint ~ A Partnership Toward Zero Deaths*.

### **CONSULTATIVE MULTIDISCIPLINARY APPROACH PROCESS**

Throughout the entire SHSP update, safety stakeholders were extensively involved in the development process. Initially, a multidisciplinary working group representing individuals from key state and local agencies were selected to oversee the plan development. The working group had representatives from the four "Es"; including enforcement, engineering, education, and emergency response as well as state and local planning organizations. They were charged with conducting extensive data analysis, identifying a new fatality reduction goal, and producing the initial draft document.

Once the initial draft plan was finalized, it was distributed to safety partners around the state for review and comment. Over 1,000 city, county, state and federal safety partners had the opportunity to review the draft and many sent suggested revisions. This assured we had consulted with the diverse stakeholders as identified in Section 148(a)(11)(A). As appropriate, these revisions were incorporated into the final document. The Blueprint revision working group listing is included in this document.

### **STRATEGIC DIRECTION AND COORDINATION**

Missouri's Blueprint serves as the overarching document to help reduce the number of traffic crash fatalities and serious injuries. The Highway Safety Plan, Commercial Motor Vehicle Safety Plan, and the Highway Safety Improvement Program were used as part of the planning process since these plans are integral in carrying out many of the strategies outlined the SHSP. These plans also are designed to complement and help with the implementation of the SHSP. All safety projects included in the STIP must have strategies identified in the SHSP.

### **DATA ANALYSIS FOR EMPHASIS AREA SELECTION**

After extensive data analysis, the plan identified the following six Emphasis Areas:

- Serious Crash Types
- High-Risk Driving and Unrestrained Occupants
- Special Vehicles
- Vulnerable Roadway Users
- Special Roadway Environments
- Data and Data System Improvements

The data review included an analysis of fatalities, serious injuries and crashes by crash type, vehicle type, age, and location.

### **PERFORMANCE-BASED APPROACH GOALS AND TARGETS**

A key foundation of the document is performance measurement and management. A fatality reduction goal of zero has been established; 700 or fewer fatalities has been established as an interim goal. Performance measures were established for each of the 27 focus areas for a total of 66 performance measures. Data analysis was conducted on state and non-state owned public roads. Corresponding charts and data from 2012-2014 are located in the Blueprint document data section. An annual status report will be prepared for the Missouri Coalition for Roadway Safety Executive Committee. The Executive Committee member listing is included in this document.

### **STRATEGY SELECTION**

Following the selection of the six emphasis areas, 27 focus areas were identified. Each focus area has a series of strategies designed to reduce crash fatalities and serious injuries. First, a few key strategies having the greatest potential to save more lives were listed in the front of



the document and are called the “Focused Five”. Strategies under each focus area were divided into six categories; education, emergency response, enforcement, engineering, technology, and public policy/other. Strategies included in the document were evidence-based and have potential for saving more lives and reducing or mitigating injuries. Strategies and countermeasures resulting from past findings in road safety audits have also been included in this SHSP.

An entire section of the plan is dedicated to data analysis. It includes an analysis of total fatalities and serious injuries by focus area from a statewide, regional, Metropolitan Planning Organization and Missouri State Highway Patrol Troop perspective. It also includes total fatalities by age and focus area as well as a series of crash, injury and fatality maps.

### **SAFETY PARTNER UPDATES**

*Missouri’s Blueprint ~ A Partnership Toward Zero Deaths* will be effective from 2017 through 2020. An annual gathering of safety partners will be held to reenergize and keep stakeholders aware of the latest safety trends.

### **EVALUATION AND UPDATE SCHEDULE**

The performance measures will be reviewed each year and an annual report prepared once the crash files for that particular year have been closed. The next update of the SHSP will begin in June or July 2019 with an effective date for the new plan to begin January 1, 2021.

### **IMPLEMENTATION PLAN**

Provided in this correspondence is a high level implementation plan. Documenting implementation of the annual safety plans and programs (e.g., the HSP, CVSP, HSIP), and regional safety coalition plans is critical to measuring projected outcomes. The implementation plan also references resources to help implement the SHSP. This includes the strategy, action/project plan, agency/champion, resources, time frame and perfor-

mance measures. The implementation plan is listed by the emphasis areas and the corresponding focus areas.

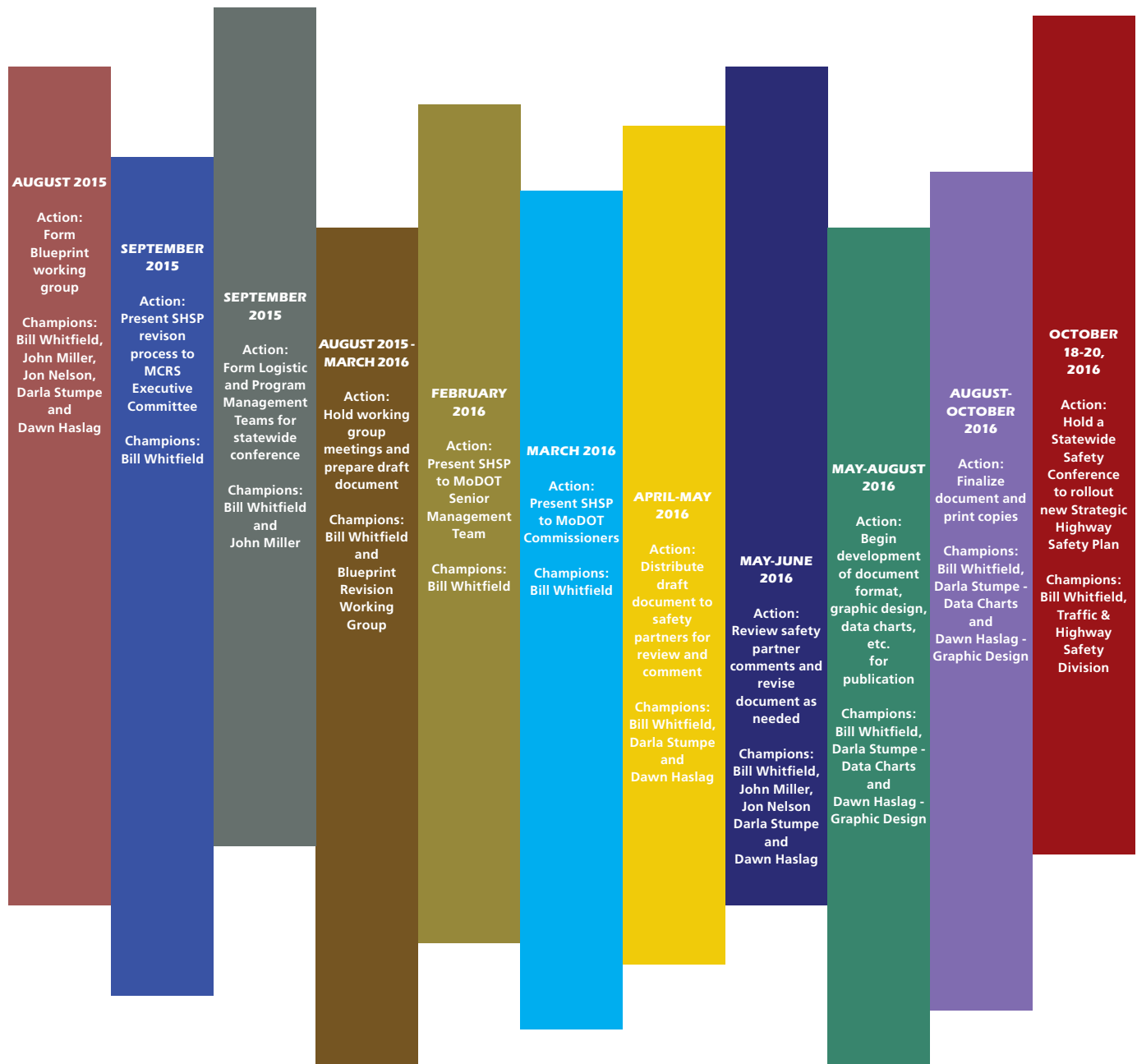
### **SUMMARY**

The Missouri Coalition for Roadway Safety Executive Committee is ultimately responsible for the implementation of the strategies outlined in the document. The seven regional blueprint coalitions also play an important role in implementing relevant strategies in their respective areas.

In an effort to monitor the progress of saving lives and reducing injuries, this committee and the seven regional blueprint coalitions will receive an annual progress report.

Included in this correspondence is the Blueprint revision process timeline. It begins with the development of the working group team followed by presenting the revision proposal and timeline to the Missouri Coalition for Roadway Safety Executive Committee for approval. The timeline concludes with the distribution of the document during the Blueprint conference. The development of the revised Blueprint paralleled the planning of the Blueprint conference which involved a separate multidisciplinary working group.

# BLUEPRINT DEVELOPMENT TIMELINE



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# IMPLEMENTATION PLAN

## EMPHASIS AREA I SERIOUS CRASH TYPES

### LANE DEPARTURE

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate on dangers of aggressive driving. Run off road recovery techniques	SHSP/HSP/ Regional Highway Safety Plans	Office of Highway Safety (OHS)/Missouri Coalition for Roadway Safety (MCRS)	NHTSA/FMCSA, MCRS Funds	Annual	Number of PSA/ news releases, number of fatalities and serious injuries
EMERGENCY RESPONSE	Improve EMS response time	TIM strategic plan	MCRS Traffic Incident Management Subcommittee	MCRS funds	Annual	Number of TIM responders trained
ENFORCEMENT	Enforce aggressive driving, substance-impaired. Increase enforcement on high-crash roadways/ corridors	HSP/ Regional Highway Safety Plans	OHS/MCRS, Law Enforcement Subcommittee	NHTSA/FMCSA/ MCRS funds, State funds	Annual	Number of overtime hours worked and citations issued
ENGINEERING	Install center and edge line rumble strips, improve roadway visibility features, enhance friction and drainage. Remove trees from right-of-way and relocate utility poles when applicable.	STIP/HSIP	MoDOT/Local Transportation agencies, MCRS Infrastructure Subcommittee	Federal, state and local transportation funds	Annual	Number of lane departure treatment safety countermeasures implemented

### INTERSECTIONS

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate roadway users on intersection traffic controls and innovative intersection designs	HSP/CVSP Regional Highway Safety Plans	OHS, MCRS, MPO's, RPC's	NHTSA/FMCSA, MCRS Funds	Annual	Number of PSA's, news releases and instructional videos, number of fatalities and serious injuries
EMERGENCY RESPONSE	Improve EMS response time	SHSP/TIM strategic plan	MCRS Traffic Incident Management Subcommittee	MCRS funds, city, county and state funds	Annual	Number trained in TIM
ENFORCEMENT	Increase targeted enforcement of vehicles and pedestrians at high-crash intersections	HSP/ Regional Highway Safety Plans	OHS/MCRS Law Enforcement Subcommittee	NHTSA/FMCSA/ MCRS Funds	Annual	Number of overtime hours worked and citations issued
ENGINEERING	Implement innovative intersection designs for motorized and non-motorized users	STIP/HSIP	MoDOT/Local Transportation agencies	Federal, State and local transportation funds	Annual	Number of intersection improvements at signalized and non-signalized locations

## EMPHASIS AREA II

### HIGH-RISK DRIVING & UNRESTRAINED OCCUPANTS

#### AGGRESSIVE DRIVING

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate on the dangers of aggressive driving and accepting full responsibility for their safety and the safety of others	HSP/ CVSP/ Regional Highway Safety Plans	OHS, MCRS, MoDOT	NHTSA/ FMCSA, MCRS Funds	Annual	Number of PSA, and social media posts and presentations
EMERGENCY RESPONSE	Utilize EMS personnel in traffic safety education campaigns	SHSP	Bureau of EMS, City and County EMS staff	Federal, state and local funds	Annual	Number of campaigns utilizing EMS personnel and presentations provided by health professionals
ENFORCEMENT	Increase enforcement on identified high-incident corridors/roadways	HSP/ MCRS Regional Plans	Office of Highway Safe- ty, city, county and state law enforcement agencies, Law Enforcement Subcommittee	NHTSA and MCRS Funds	Annual	Number of citations issued and hours worked on high-crash corridors/roadways, number of fatalities and serious injuries
ENGINEERING	Implement speed management measures (e.g., narrowing lanes, speed bumps, roundabouts, etc.)	SHSP/ HSIP/STIP	MoDOT/local transportation agencies MPO's	Federal, state and local transportation funds	Annual	Number of speed management improvements implemented

#### UNRESTRAINED DRIVERS & OCCUPANTS

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate on the use of available restraint systems for all occupants regardless of age	HSP/CVSP/Regional Highway Safety Plans, occupant protection strategic plan	OHS, MCRS	NHTSA/ FMCSA, MCRS Funds	Annual	Safety belt child restraint use rate
ENFORCEMENT	Increase enforcement participation in occupant protection mobilizations	HSP/CVSP/Regional Highway Safety Plans, occupant protection strategic plan	OHS, MCRS Law En- forcement Subcom- mittee	NHTSA/ FMCSA, MCRS funding	Annual	Number of participating law enforcement agencies
ENGINEERING	Increase use of messaging through dynamic message signs during mobilizations	Traffic Management and Operations	MoDOT	State funds	Annual	Number and location of message signs utilized during mobilization campaigns



**SUBSTANCE-IMPAIRED DRIVING**

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
<b>EDUCATION</b>	Educate roadway users on the dangers of substance-impaired driving	HSP/CVSP/ Regional Highway Safety Plans, impaired driving strategic plan	OHS, MCRS	NHTSA/ FMCSA, MCRS funding	Annual	Number of fatalities and serious injuries
<b>EMERGENCY RESPONSE</b>	Develop blood draw policies for use with EMS, hospitals and law enforcement	SHSP	Bureau of EMS	NHTSA funding	Annual	Number of agencies that develop a blood draw policy
<b>ENFORCEMENT</b>	Increase enforcement participation in substance-impaired driving mobilizations	HSP/CVSP/ Regional Highway Safety Plans, impaired driving strategic plan	OHS, MCRS Law Enforcement Subcommittee	NHTSA/ FMCSA, MCRS Funds	Annual	Number of agencies participating in substance-impaired driving mobilizations

**UNLICENSED/IMPROPERLY LICENSED DRIVING**

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
<b>EDUCATION</b>	Develop education campaigns on dangers of unlicensed/improperly licensed driving	HSP	OHS	NHTSA Funds	Annual	Number of fatalities and serious injuries involving an unlicensed/improperly licensed driver
<b>ENFORCEMENT</b>	Conduct enforcement in high-risk areas of unlicensed/improperly licensed drivers	HSP	OHS, city, county, state law enforcement, MCRS Law Enforcement Subcommittee	NHTSA Funds	Annual	Number of enforcement hours and arrests

**YOUNG DRIVER (15-20 YEARS OF AGE)**

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
<b>EDUCATION</b>	Educate on safety belt usage, following rules of the road and GDL law requirements	HSP/ CVSP/ Regional Highway Safety Plans	OHS, MCRS	NHTSA/ FMCSA, MCRS funding	Annual	Number of young driver involved fatalities and serious injuries, number of GDL trainings provided
<b>EMERGENCY RESPONSE</b>	Encourage emergency contact information to be placed in vehicles	SHSP	OHS, MCRS, Bureau of EMS	NHTSA, MCRS funds	Annual	Number of outreach efforts
<b>ENFORCEMENT</b>	Encourage strict enforcement of GDL law	HSP, MCRS regional plans	OHS, MCRS Law Enforcement Subcommittee	NHTSA, MCRS Funds	Annual	Enforcement hours/ campaigns mobilizations

**DISTRACTED/INATTENTIVE DRIVING**

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Expand public information campaigns of distracted driving	HSP, CVSP, MCRS regional plans	OHS, MCRS	NHTSA/ FMCSA, MCRS Funds	Annual	Number of educational efforts and outreach programs
ENFORCEMENT	Increase enforcement of traffic violations involving distracted driving	HSP, MCRS regional plans	OHS, MCRS, city, county and state law enforcement, MCRS Law Enforcement Subcommittee	NHTSA/FMCSA MCRS Funds	Annual	Number of mobilizations conducted and number of fatalities and serious injuries
ENGINEERING	Continue installation of center and edgeline rumbles and median guard cable	HSIP/ STIP/ Local MPO/RPC	MoDOT and local transportation agencies	Federal, state and local transportation funds	Annual	Number of edgeline/centerline rumbles and guard cable installations

**DROWSY DRIVING**

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Expand efforts to educate on dangers of drowsy/fatigued driving	HSP, MCRS regional plans	OHS, MCRS	HSP/MCRS Funds	Annual	Number of educational campaigns conducted
ENFORCEMENT	Increase enforcement focusing on violations associated with drowsy driving	HSP, MCRS regional plans	OHS, MCRS, city, county and state law enforcement, MCRS Law Enforcement Subcommittee	HSP/MCRS Funds	Annual	Reporting of drowsy driving on citations and crash reports
ENGINEERING	Continue installation of center and edgeline rumbles, median guard cable and transverse rumbles to alert drivers of upcoming decision points	HSIP/ STIP/ Local MPO/ RPC	MoDOT and local transportation agencies	Federal, state and local transportation funds	Annual	Number of edgeline/centerline/transverse rumbles and guard cable installations and transverse rumbles to alert drivers

## EMPHASIS AREA III

### **SPECIAL VEHICLES**

#### COMMERCIAL MOTOR VEHICLE

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Increase educational efforts on Share the Road and No Zone messaging	HSP/ CVSP	OHS, MCRS, Missouri Trucking Association	FMCSA Funds	Annual	Number of promotional campaigns conducted
EMERGENCY RESPONSE	Enhance TIM training for local responders	SHSP	MCRS TIM subcommittee	MCRS Funds	Annual	Number trained in traffic incident management
ENFORCEMENT	Participate in Operation Safe Driver mobilization	CVSP	OHS, MCRS CMV Subcommittee, MCRS Law Enforcement Subcommittee	FMCSA Funds	Annual	Number of participating law enforcement agencies in mobilization
ENGINEERING	Initiate appropriate interventions on high-incident corridors	HSIP/STIP	MoDOT	Federal, state and local transportation funds	Annual	Number of additional intervention installations

#### ALL-TERRAIN VEHICLES (ATVs)/UTILITY VEHICLES (UTVs)

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/CHAM- PION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate ATV/UTV operators on importance of protective gear and helmets	SHSP	MCRS	NHTSA/MCRS Funds	Annual	Campaign messages on importance of proper safety equipment for riders
ENFORCEMENT	Increase enforcement on ATV/UTV laws	SHSP	MCRS Law Enforcement Subcommittee, city, county and state law enforcement	NHTSA Funds	Annual	Number of citations issued for ATV/UTV violations

#### SCHOOL BUSES

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate roadway users about school bus laws and regulations	SHSP	MCRS Department of Elementary and Secondary Education	NHTSA/MCRS Funds	Annual	Number of publicized campaigns
ENFORCEMENT	Encourage local school districts to work with law enforcement to help enforce stop/signal arm violations	SHSP	Local school districts, MCRS Law Enforcement Subcommittee, city, county and state law enforcement	NHTSA, local Funds	Annual	Number of combined efforts with schools and law enforcement agencies
ENGINEERING	Install and maintain proper speed limits and high-visibility signing for all school zones	HSIP/STIP	MoDOT and local transportation agencies	Federal, state and local transportation funds	Annual	Number of new installs and ongoing maintenance efforts

## EMPHASIS AREA IV

### VULNERABLE ROADWAY USERS

#### OLDER DRIVER (AGE 65 & OVER)

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate older drivers and their families on driving risks associated with medications, medical conditions and naturally occurring limitations	Older Driver Strategic Plan, HSP	MCRS Elder Mobility and Safety Subcommittee	NHTSA/MCRS Funds	Annual	Number of educational campaigns and fitness to drive screenings
EMERGENCY RESPONSE	Educate first responders on importance of transporting older patients to hospitals that can adequately treat	Older Driver Strategic Plan	Elder Mobility and Safety Subcommittee	NHTSA Funds	Annual	Number of educational outreach efforts
ENFORCEMENT	Promote the importance of citing and warning older drivers for driving violations	SHSP/HSP	OHS, MCRS Law Enforcement Subcommittee	NHTSA Funds	Annual	Number of educational outreach efforts promoted to law enforcement
ENGINEERING	Expand and maintain roadway visibility features	HSIP/STIP Local transportation plans	MoDOT and local transportation agencies	Federal, state and local transportation funds	Annual	Maintenance improvement of existing visibility features

#### MOTORCYCLISTS

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Promote the use of rider education programs for new and experienced riders	HSP	OHS, MCRS Motorcycle Subcommittee	NHTSA Funds	Annual	Number of rider education courses offered and attended
EMERGENCY RESPONSE	Educate EMS personnel on crash scene management	SHSP	MCRS Motorcycle Subcommittee	NHTSA Funds	Annual	In-service trainings provided
ENFORCEMENT	Enforce helmet, aggressive driving and substance-impaired driving laws	HSP	OHS, MCRS Motorcycle Subcommittee, Law Enforcement Subcommittee	NHTSA Funds	Annual	Number of fatalities and serious injuries
ENGINEERING	Implement policy planning and road maintenance efforts to enhance motorcycle safety	HSIP/STIP	MoDOT and local transportation agencies	Federal, state and local transportation funds	Annual	Number of fatalities and serious injuries



## PEDESTRIANS

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate public on dangers of exiting disabled vehicle and importance of utilizing crosswalks and obeying signals	SHSP	OHS, PedNet, Trailnet	NHTSA Funds	Annual	Number of fatalities and serious injuries
ENFORCEMENT	Enforce traffic laws to prevent pedestrian injuries and deaths	HSP	OHS, MCRS Law Enforcement Subcommittee	NHTSA Funds	Annual	Number of fatalities and serious injuries
ENGINEERING	Promote systemic design to reduce conflict points	HSIP/ STIP local transportation plans	MoDOT and local transportation agencies, MCRS Infrastructure Subcommittee	Federal, state and local transportation funds	Annual	Number of fatalities and serious injuries

## BICYCLISTS

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Enhance public awareness to promote safer behavior by all roadway users relative to bicycle traffic	HSP	OHS, PedNet, Trailnet	NHTSA Funds	Annual	Number of fatalities and serious injuries
ENFORCEMENT	Enforce traffic laws for both bicyclists and motorists	HSP	OHS, MCRS Law Enforcement Subcommittee	NHTSA Funds	Annual	Number of fatalities and serious injuries
ENGINEERING	Promote systemic design solutions that reduce conflict points	HSIP/ STIP	MoDOT and local transportation agencies, MCRS Infrastructure Subcommittee	Federal, state and local transportation funds	Annual	Number of fatalities and serious injuries

## EMPHASIS AREA V

### **SPECIAL ROADWAY ENVIRONMENTS**

#### NIGHTTIME DRIVING

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate roadway users on risks associated with nighttime driving	SHSP	OHS, MCRS	NHTSA Funds	Annual	Number of fatalities and serious injuries
EMERGENCY RESPONSE	Ensure all emergency responders are visible to all roadway users	SHSP	Bureau of EMS	Funds from each emergency response entity	Annual	Number of fatalities and serious injuries
ENFORCEMENT	Expand use of sobriety checkpoints/saturation patrols and enforcement of safety belt laws	HSP	OHS, city, county, state law enforcement, MCRS Law Enforcement Subcommittee	NHTSA, MCRS Funds	Annual	Number of fatalities and serious injuries
ENGINEERING	Install and maintain center and edge line stripes with rumbles and improve roadway lighting where appropriate	HSIP/ STIP Local transportation plans	MoDOT and local transportation agencies, MCRS Infrastructure Subcommittee	Federal, state and local transportation funds	Annual	Number of fatalities and serious injuries

#### WORK ZONE

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Educate drivers on their responsibility to safely drive through all work zones	HSIP/ STIP	MCRS Public Information Subcommittee	NHTSA Funds	Annual	Number of educational outreach efforts
EMERGENCY RESPONSE	Educate first responders on the importance of incident management and quick clearance practices within work zones	SHSP	Bureau of EMS/MoDOT	Federal, state and local funds	Annual	Number of fatalities and serious injuries
ENFORCEMENT	Increase active and/or passive enforcement in work zones	HSIP/ STIP	OHS, city, county, state law enforcement	Federal, state and local funds	Annual	Number of fatalities and serious injuries
ENGINEERING	Ensure work zones are safe for motorists and workers	HSIP/ STIP Local transportation plans	MoDOT and local transportation agencies, MCRS Infrastructure Subcommittee	Federal, state and local transportation funds	Annual	Number of fatalities and serious injuries

## HIGHWAY/RAIL CROSSING

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Promote Operation Lifesavers message "See Tracks? Think Train!"	SHSP, Operation Lifesaver	Operation Lifesaver, MCRS Public Information Subcommittee	NHTSA, MCRS Funds	Annual	Number of out-reach campaigns
EMERGENCY RESPONSE	Educate first responders on challenges of train-vehicle crashes	SHSP, Operation Lifesaver	Operation Lifesaver, MCRS	Operation Lifesaver	Annual	Number of educational programs presented
ENFORCEMENT	Enforce driving around lowered gates	SHSP, Operation Lifesaver	Operation Lifesaver, city, county, state law enforcement, MCRS Law Enforcement Subcommittee	City, county, state enforcement funds	Annual	Number of special enforcement campaigns conducted
ENGINEERING	Expand current light and gate projects and full closures	HSIP/STIP Local transportation plans	Operation Lifesaver, MCRS Infrastructure Subcommittee, MoDOT Multimodal Division	Federal, state and local transportation funds	Annual	Number of new installations

## TRAFFIC INCIDENT MANAGEMENT AREA

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Promote SHRP2 TIM responder training	SHRP2 TIM responder training	MCRS Traffic Incident Management Subcommittee	MCRS, federal, state and local transportation funds	Annual	Number trained in TIM
EMERGENCY RESPONSE	Coordinate, develop and implement incident management plans for interstate and high-priority corridors with enforcement	SHRP2 TIM responder training	MCRS Traffic Incident Management Subcommittee	MCRS, federal, state and local funds	Annual	Average time to clear corridor incident
ENFORCEMENT	Increase enforcement of Missouri's Move Over Law	SHRP2 TIM responder training	MCRS Traffic Incident Management Subcommittee, MCRS Law Enforcement Subcommittee	MCRS, Federal, state and local funds	Annual	Number of fatalities and serious injuries
ENGINEERING	Expand access to systems such as dynamic message signs (DMS) and other systems that can display incident management information	SHRP2 TIM responder training	MCRS Traffic Incident Management Subcommittee, MCRS Infrastructure Subcommittee	MCRS, Federal, state and local funds	Annual	Number of fatalities and serious injuries

## EMPHASIS AREA VI

### DATA & DATA SYSTEM IMPROVEMENTS

#### DATA COLLECTION

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Strengthen efforts to encourage law enforcement to electronically submit crash reports	SHSP/ HSP	MCRS Traffic Records Coordinating Subcommittee	NHTSA Funds	Annual	Percent of crash reports submitted electronically

#### DATA ACCESSIBILITY

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Continue efforts to automate search and data retrieval from the driver and vehicle files for auto population of crash and citation forms	SHSP/ HSP	MCRS Traffic Records Coordinating Subcommittee	NHTSA Funds	Annual	Number of users gaining data from MSHP crash report website

#### SYSTEM LINKAGE

STRATEGY	ACTION/ PROJECT	PLAN	AGENCY/ CHAMPION	RESOURCES	TIME- FRAME	PERFORMANCE MEASURES
EDUCATION	Improve the state's traffic records data systems capacity to integrate the crash, roadway, citation/adjudication vehicle, driver and injury surveillance systems	SHSP/ HSP	MCRS Traffic Records Coordinating Subcommittee	NHTSA Funds	Annual	Progress towards development of data warehouse consisting of the crash, roadway, citation/adjudication, vehicle, driver and injury surveillance systems



## **Additional Resources**

*Countermeasures That Work: A Highway Safety Countermeasure Guide For State Highway Safety Offices*  
Current Edition  
[www.nhtsa.gov](http://www.nhtsa.gov)

*Highway Safety Manual. American Association of State Highway Transportation Officials*  
Current Edition  
[www.transportation.org](http://www.transportation.org)

*Roadside Design Guide, American Association of State Highway and Transportation Officials*  
Current Edition  
[www.transportation.org](http://www.transportation.org)

*Traffic Practices: A Guidebook for City and County Agencies, Missouri Coalition for Roadway Safety, Infrastructure Subcommittee*  
[www.saveMOLives.com](http://www.saveMOLives.com)

*Federal Highway Administration, Crash Modification Factors Clearinghouse*  
[www.cmfclearinghouse.org](http://www.cmfclearinghouse.org)

*Low-Cost Treatments for Horizontal Curve Safety. Federal Highway Administration*  
<http://safety.fhwa.dot.gov>

*Manual on Uniform Traffic Control Devices, Federal Highway Administration*  
Current Edition  
<http://mutcd.fhwa.dot.gov>

*How to Develop a Pedestrian Safety Action Plan, FHWA SA-05-12, February 2006*  
[www.narc.org/uploads/File/Transportation/Library/howto\\_bikeped.pdf](http://www.narc.org/uploads/File/Transportation/Library/howto_bikeped.pdf)

*Highway Design Handbook for Older Drivers and Pedestrians, FHWA-Current edition*  
<http://www.tfhr.gov/humanfac/01103/coverfront.htm>

*Handbook for Designing Roadways for the Aging Population*  
[http://safety.fhwa.dot.gov/older\\_users/handbook/](http://safety.fhwa.dot.gov/older_users/handbook/)

*PEW Research Center*  
[www.pewresearch.org](http://www.pewresearch.org)

*Missouri Census Data Center*  
[www.mede.missouri.edu](http://www.mede.missouri.edu)

*Missouri Department of Revenue*  
[www.dor.mo.gov](http://www.dor.mo.gov)

**NCHRP (National Cooperative Highway Research Program) Report 500: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan**  
<http://www.trb.org/Main/Blurbs/152868.aspx>

*Volume 1: A Guide for Addressing Aggressive-Driving Collisions*

*Volume 2: A Guide for Addressing Collisions Involving Unlicensed Drivers and Drivers with Suspended or Revoked Licenses*

*Volume 3: A Guide for Addressing Collisions with Trees in Hazardous Locations*

*Volume 4: A Guide for Addressing Head-On Collisions*

*Volume 5: A Guide for Addressing Unsignalized Intersection Collisions*

*Volume 6: A Guide for Addressing Run-Off-Road Collisions*

*Volume 7: A Guide for Reducing Collisions on Horizontal Curves*

*Volume 8: A Guide for Reducing Collisions Involving Utility Poles*

*Volume 9: A Guide for Reducing Collisions Involving Older Drivers*

*Volume 10: A Guide for Reducing Collisions Involving Pedestrians*

*Volume 11: A Guide for Increasing Seatbelt Use*

*Volume 12: A Guide for Reducing Collisions at Signalized Intersections*

*Volume 13: A Guide for Reducing Collisions Involving Heavy Trucks*

## Appendix G

*Volume 14: A Guide for Reducing Crashes Involving Drowsy and Distracted Drivers*

*Volume 15: A Guide for Enhancing Rural Emergency Medical Services*

*Volume 16: A Guide for Reducing Alcohol-Related Collisions*

*Volume 17: A Guide for Reducing Work Zone Collisions*

*Volume 18: A Guide for Reducing Collisions Involving Bicycles*

*Volume 19: A Guide for Reducing Collisions Involving Young Drivers*

*Volume 20: A Guide for Reducing Head-On Crashes on Freeways*

*Volume 21: Safety Data and Analysis in Developing Emphasis Area Plans*

*Volume 22: A Guide to Addressing Collisions Involving Motorcycles*

*Volume 23: A Guide for Reducing Speed-Related Crashes*

## Annual VMT/Centerline Miles/Calculating Rates

### Fatalities

	Statewide	Urban	Rural	Interstate	US Routes	Missouri Numbered	Missouri Lettered	City Streets	County Roads	Other*
<b>2012</b>	826	353	473	98	123	208	147	128	91	31
<b>2013</b>	757	317	440	86	108	194	130	123	96	20
<b>2014</b>	766	300	466	98	112	200	152	91	82	31

### Annual Vehicle Miles Traveled (VMT)

	Statewide	Urban	Rural	Interstate	US Routes	Missouri Numbered	Missouri Lettered	City Streets	County Roads	Other*
<b>2012</b>	68,402,691,371	39,034,529,455	29,368,161,914	19,971,162,975	10,124,014,660	10,808,281,525	5,426,218,269	13,981,149,430	6,795,401,460	1,296,463,050
<b>2013</b>	69,327,888,701	40,405,466,121	28,922,422,582	19,968,094,420	10,299,817,127	10,817,429,680	5,396,826,389	14,331,549,525	7,176,799,798	1,337,371,764
<b>2014</b>	70,937,233,272	41,515,370,585	29,421,862,685	20,844,965,310	10,425,754,111	10,909,780,098	5,416,383,155	14,737,305,555	7,273,576,617	1,329,468,424

### Centerline Miles

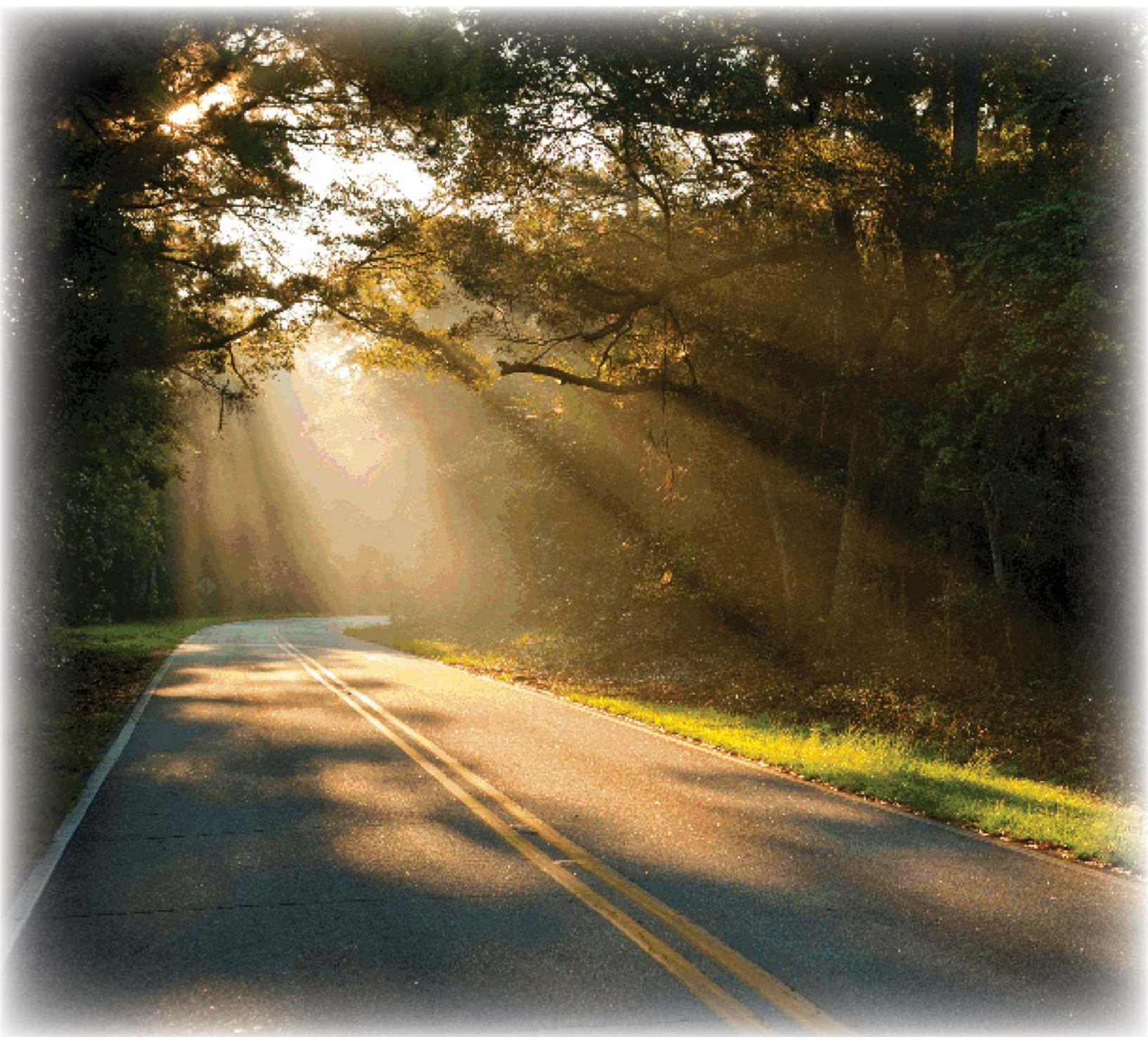
	Statewide	Urban	Rural	Interstate	US Routes	Missouri Numbered	Missouri Lettered	City Streets	County Roads	Other*
<b>2012</b>	131,978	33,885	98,093	1,379	3,428	8,336	19,145	23,199	73,423	3,068
<b>2013</b>	131,901	33,890	98,011	1,379	3,428	8,340	19,141	23,166	73,383	3,064
<b>2014</b>	131,565	33,892	97,673	1,380	3,428	8,347	19,139	23,248	73,356	2,668

### Rate Calculation Example:

*Fatality rate formula:* (Fatalities\*100,000,000)/VMT

*2014 Fatality rate:* (766\*100,000,000)/70,937,233,272 = 1.08 statewide fatality rate

*\* Includes business routes, ramps, outer roads, loops, conservation access roads, etc.*





*Missouri Coalition  
for **Roadway Safety***



**Missouri Coalition for Roadway Safety**

**P.O. Box 270  
Jefferson City, MO 65102  
800.800.2358 (BELT)**

**savemolives.com**

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